

# BIOLOGICAL RESOURCES

Testimony of Andrea Erichsen

## INTRODUCTION

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This section provides the Energy Commission staff's analysis of potential impacts to biological resources from construction and operation of the East Altamont Energy Center (EAEC). The analysis focuses on impacts to state and federally listed species, fully protected species, species of special concern, wetlands, and other areas of critical biological concern. In this section, staff describes the biological resources of the project site and ancillary facilities; determines the need for mitigation; determines the adequacy of mitigation proposed by the Applicant and, where necessary, specifies additional mitigation measures to reduce identified impacts to less than significant levels; determines compliance with applicable laws, ordinances, regulations, and standards; and recommends conditions of certification.

In order to determine the ecological significance of project impacts, staff relies primarily upon standards and criteria established by the Federal and State Endangered Species Acts, as well as guidelines established by the California Environmental Quality Act (CEQA). Staff must determine significance based on whether populations of endangered, threatened, protected, and sensitive species or biotic communities will be adversely affected by the proposed EAEC. Significant impacts are those which affect a species' population size, geographic range, habitat, nesting success, or migration, or those which diminish, fragment, contaminate, or otherwise threaten biotic communities. The Fish and Game Code and other state and local regulations also help staff assess impacts. The above regulations direct applicants to avoid and mitigate for the loss of habitat for sensitive species and to obtain permits for incidental take of protected species.

This analysis is based upon information provided by the Applicant in the Application for Certification (AFC), data adequacy information, data responses to data requests, as well as information gathered during site visits, data response workshops, and discussions with various agency representatives, including the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and the National Marine Fisheries Service (NMFS). This analysis is a joint environmental document with the Western Area Power Administration (Western), which is mandated to review the EAEC according to the National Environmental Policy Act (NEPA) because the EAEC proposes to connect to a Western facility (Western 2001a). Western is the lead federal agency for purposes of NEPA and the Endangered Species Act. Western must address impacts to floodplains and wetlands under the Department of Energy (DOE) Floodplain/Wetland regulations (Title 10, Code of Federal Regulations, section 1022) and Executive Orders 11988 and 1990.

## **LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)**

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### **FEDERAL**

#### **Endangered Species Act of 1973**

Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat. Section 7 requires a consultation with the U.S. Fish and Wildlife Service (USFWS) if “take” may result during lawful project activities. Western was the lead agency in requesting the consultation. If no federal nexus exists for a project, a Section 10, Habitat Conservation Plan (HCP) may be required.

#### **Migratory Bird Treaty Act**

Title 16, United States Code, sections 703 through 711, prohibit the take or possession of migratory birds, parts, or nests without a permit issued by the USFWS and California Department of Fish and Game (CDFG).

#### **Bald and Golden Eagle Protection Act**

Title 16, United States Code, section 668, prohibits the take or possession of eagles, parts, or nests without a permit issued by the USFWS.

#### **Clean Water Act**

Title 33 United States Code, section 404 et seq., prohibits the discharge of dredged or fill material into the waters of the United States without a permit. The administering agency is the Army Corps of Engineers.

#### **Department of Energy-Floodplain and Wetland Regulations**

This regulation at Title 10, Code of Federal Regulations (CFR), section 1022 establishes policy and procedures for discharging the Department of Energy's (DOE's) responsibilities with respect to compliance with Executive Order (E.O.) 11988 and E.O. 11990, including: (1) DOE policy regarding the consideration of floodplain/wetlands factors in DOE planning and decision-making; and (2) DOE procedures for identifying proposed actions located in floodplain/wetlands, providing opportunity for early public review of such proposed actions, preparing floodplain and wetland assessments, and issuing statements of findings for actions in a floodplain.

### **STATE**

#### **California Endangered Species Act of 1984**

Fish and Game Code, sections 2050 through 2098, protect California's rare, threatened, and endangered species.

## **California Code of Regulations**

Title 14, California Code of Regulations, sections 670.2 and 670.5, list animals of California designated as threatened or endangered. The CEQA Guidelines Section 15000 et seq. defines the type and extent of biological information needed to evaluate impacts from a proposed project.

Title 20, California Code of Regulations, section 1702 protects “areas of critical concern” and “species of special concern.”

## **Protection for Migratory Birds**

Fish and Game Code section 3513 protects California’s migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird.

## **Protection for Fully Protected Species**

Fish and Game Code, sections 3511, 4700, 5050, and 5515, designate certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3, section 670.7).

## **Protection of Nest or Eggs**

Fish and Game Code section 3503 protects California’s birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

## **Protection of Significant Natural Areas**

Fish and Game Code section 1930 et seq. designate certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Fish and Game Code section 1580 designates land and water areas as significant wildlife habitats so they can be preserved in natural condition for low-impact public use.

## **Streambed Alteration Agreement**

Fish and Game Code Section 1600 reviews project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions and other disturbances.

## **Native Plant Protection Act of 1977**

Fish and Game Code Section 1900 et seq., designate state rare, threatened, and endangered plants.

## **Delta Protection Act of 1992**

Sections 29700 –29712, Legislate protection for the Sacramento-San Joaquin Delta and its natural resources including wildlife, fish, and the habitats on which they depend.

Section 29760 specifies the adoption of a comprehensive, long-term resource management plan, which includes requirements for the conservation, preservation, and restoration of Delta wildlife, fisheries, and habitats.

## LOCAL

### **Alameda County East County Area Plan (1994)**

Policy 113 requires landscaping that enhances the scenic quality of an area. Criteria for landscaping includes: use of drought resistant plants, use of plants compatible with the surrounding vegetation, use of plants which provide habitat value, use of plants which are fire retardant, and suitable to site conditions.

Program 51 provides a list of extremely invasive non-native plants that are not suitable for landscaping.

Policy 118 states that the county will secure open space, through acquisition of easements or fee title, for the specific purpose of preserving wildlife habitats.

Policies 119-120 encourage preservation and enhancement of biological diversity and provide specific attention to management of special status species.

There are also two regional resource management plans that have been developed to protect open space, habitats and populations of special status species (San Joaquin County 2000; USFWS 1998). Both of these plans establish a concern for special status species and loss of habitat quantity and quality in the project vicinity. The two plans include:

**The San Joaquin County Multispecies Habitat Conservation and Open Space Plan (SJMSCP)** provides a strategy for balancing protection of essential wildlife habitat as well as open space, with the increasing demands of human society and economy driving land development. This plan applies to San Joaquin County only, and relies upon minimizing, avoiding, and mitigating impacts to species covered within the plan. One of the focal species in the plan is the San Joaquin kit fox.

**The Recovery Plan for Upland Species of the San Joaquin Valley, California.** The primary objective of this recovery plan is the recovery of 11 endangered and threatened species, along with protection and long-term conservation of candidate species and species of special concern. The species covered in the plan inhabit grasslands and scrublands of the San Joaquin Valley, adjacent foothills, and small valleys. The San Joaquin kit fox is a focal species in this plan as well.

## ENVIRONMENTAL SETTING

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### REGIONAL SETTING

The East Altamont Energy Center (EAEC) is located within a 174-acre parcel of agricultural land in the eastern corner of Alameda County, along the western side of the San Joaquin Valley. The Clifton Court Forebay is a prominent waterbody, which is located to the north of the EAEC site and connects with the Delta-Mendota Canal and California Aqueduct. The project site lies northeast of the intersection of Mountain House Road and Kelso Road, and lies east of the Tracy Pumping Station (which is on the Delta-Mendota Canal) and approximately 8 miles northwest of the city of Tracy. Western owns the Tracy Substation located less than 0.5 miles southwest of the EAEC

site and there are a few other small “industrial” land uses within 5 miles of the EAEC site.

The project area, elevation 40 feet above mean sea level, is located east of the Altamont Hills. The Altamont Hills and surrounding mountain ranges provide important habitats for a diversity of species. In addition, the agricultural landscape of the San Joaquin Valley also provides open space, foraging, denning, and nesting habitats for wildlife. The agricultural products of the area include: alfalfa fields, hay, row crops, orchards, annual grasslands, cattle pasture, and dairies (EAEC 2001a, page 8.2-2). General habitats potentially affected by the proposed EAEC include annual grassland, alkaline meadows, emergent marsh, and riparian shrub, as well as agricultural crops and irrigation ditches. The loss of natural and agricultural lands to housing and industrial uses has accelerated in recent years and it has become increasingly important to protect open space and habitats in the region.

## **LOCAL SETTING**

Agricultural crops dominate the EAEC project site, while the surrounding areas are characterized by increasing levels of urban development. The proposed power plant will require approximately 43.5 acres within the 174-acre project site (EAEC Supplement B, received October 10, 2001). The EAEC project site is rectangular, bordered by irrigation ditches along the eastern and southern boundaries. The ditch along the east side provides a corridor less than 5 feet wide of wetland vegetation. Until recently, the parcel was used for agriculture, particularly crops such as alfalfa, which can be beneficial to wildlife (EAEC 2001a, Figure 8.2-1). The project site is also surrounded on three sides by paved 2-lane highways. A small residential area is located on adjacent lands to the south. In general, the vegetative communities on the project site are classified as agricultural and/or ruderal, and the endemic natural plant and animal communities have been permanently altered, reduced, fragmented, and/or extirpated over the past decades.

### **Sensitive Local Habitats**

Despite the highly modified character of the local landscape and natural communities, the agricultural habitats and small riparian corridors still may provide important habitats for the dispersal, refuge, nesting, and foraging of a diversity of wildlife and plant species. Sensitive and rare natural communities such as those discussed below exist in the EAEC project area.

**Wetlands** are sensitive habitats characterized by many uniquely adapted plant and animal communities. Federal and state laws provide special protection for wetlands because of their rarity and historic losses resulting from draining and filling, and because they provide a variety of valuable ecosystem benefits such as groundwater recharge, flood buffering, soil retention, and wildlife habitat. Wetlands are classified according to their soils, hydrology, and associated plant species. Emergent freshwater marshes exist south, west, and east of the project site. These areas will be avoided by the EAEC (EAEC 2001a, page 8.2-3). If there are wetlands that cannot be avoided, specific permits would be required from the CDFG and Army Corps of Engineers. Wetland review will also be required through Western per DOE Floodplain/Wetland

review requirements found at Title 10, Code of Federal Regulations, section 1022. (ACOE) (EAEC 2001u, pp.12-14).

**Vernal pool** communities support highly co-evolved plants and animals that are endemic to these seasonally flooded depressions. Vernal pools form on the surface above an impermeable soil layer such as a hardpan, claypan, or volcanic basalt (Ericksen and Belk 1999; Holland and Jain 1988; Thorne 1984; USFWS 1994; USFWS 1996). In California, vernal pool communities have come under increasing pressures from human conversion of lands for urban uses (USFWS 1994; USFWS 1996). Endemic to vernal pools are many plants and animals such as fairy shrimp; there are 25 species of fairy shrimp in California, five of which have special status as threatened or endangered largely due to habitat destruction (Ericksen and Belk 1999). The vernal pool fairy shrimp is a federally threatened species that potentially inhabits vernal pools near the proposed EAEC. The low-growing and sparse plant cover common around the vernal pools is attractive hunting and breeding habitats for many species of wildlife, including the San Joaquin kit fox and burrowing owl. Vernal pool habitats are found in the project region but are not found on the EAEC project site. For example, the closest alkaline meadow habitat occurs northeast of the intersection of Bruns and Kelso roads, approximately 1 mile west of the project site (EAEC 2001a, Figure 8.2-1 and Figure 8.9-1). The Applicant proposes to avoid vernal pool habitats completely.

**Designated Core Habitat for the California red-legged frog** exists less than 5 miles south and southwest of the EAEC project site (USFWS 2000). The proposed project will avoid significant direct impacts to this protected habitat area. The Applicant must avoid indirect and cumulative impacts caused by water use, degradation of connected riparian areas and drainages, and general habitat fragmentation in the area which may impact the local population.

**Riparian habitats** provide nesting, hunting, and roosting areas for diverse animal species and also provide habitat for native plants. It is estimated that at least 90% of California's original riparian habitat has been removed and/or degraded by human activities, thus underscoring the importance of protecting and/or restoring remaining riparian habitats (Warner 1984). Riparian habitat does not occur on the EAEC project site, but it is present in the vicinity. The EAEC project region contains riparian communities to the south, west, and east of the project site; a small area (0.2 acre) of willows, oaks, and non-native giant cane (*Arundo donax*) exists where Mountain House Creek crosses Byron Bethany Road from southwest to northeast. Impacts to riparian habitats will be avoided or minimized by the proposed project.

### **EAEC Project Site Vegetation**

Site vegetation was fallow and tilled when biology staff visited the site in May and August 2001 and March 2002. However, within the past 5 years the site has been used to cultivate oat-hay, alfalfa, tomatoes, and lima beans (EAEC 2001a, page 8.2-2). The edges of the parcel support linear patches of weeds and ruderal grassland such as: slender oat grass (*Avena barbata*), knotweed (*Polygonum arenastrum*), common chickweed (*Stellaria media*), scarlet pimpernel (*Anagallis arvensis*), and fiddleneck (*Amsinckia menziesii* var. *intermedia*). Annual grassland is common in the area and is characterized by exotic grasses such as brome (*Bromus diandrus*, *B. hordeaceus*),

oats (*Avena fatua*), and barley (*Hordeum murinum*). Common forbs include exotic species such as storksbill (*Erodium cicutarium*), wild radish (*Raphanus sativa*), and mustard (*Brassica nigra*) (EAEC 2001a, page 8.2-2). Annual grassland and ruderal vegetation are also widely distributed along roadways and the uncultivated areas immediately adjacent to an irrigation ditch running along the east side of the project site.

The irrigation ditches along the eastern boundary contain no woody vegetation or emergent vegetation but they do contain burrows that may be inhabited by San Joaquin kit fox or burrowing owl. Irrigation ditches, streams, ponds, and wetlands occur adjacent to alternative linear routes for water and gas pipelines. The most frequently observed plant species include: narrowleaf plantain (*Plantago lanceolata*), rabbitsfoot grass (*Polypogon monspeliensis*), sour clover (*Melilotus indica*), prickly sow thistle (*Sonchus asper*), perennial ryegrass (*Lolium perenne*), Italian ryegrass (*L. multiflorum*), alkali mallow (*Malva leprosa*), ripgut brome, willow herb (*Epilobium ciliatum*), and tall flatsedge (*Cyperus eragrostis*). No natural drainages or ponds exist on the EAEC project site, but there are agricultural drainage ditches along the southern and eastern borders.

## **Wildlife in the Project Area**

Agricultural and ruderal vegetation provides habitat for both common and rare wildlife populations. For example, some commonly observed wildlife species may include: California ground squirrel (*Spermophilus beecheyi*), California vole (*Microtus californicus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), badger (*Taxidea taxus*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), great-horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), turkey vulture (*Cathartes aura*), American killdeer (*Charadrius vociferus*), long-billed curlew (*Numenius americanus*), gopher snake (*Pituophis melanoleucus*), garter snake (*Thamnophis* species), and western fence lizard (*Sceloporus occidentalis*), as well as many native insect species. There are also several bat species in the area. Bats often feed on insects as they fly over agricultural and natural areas, and all bat species are state species of special concern.

Locally common and abundant wildlife species are important components of the ecosystem. Due to habitat loss, many of these species must continually adapt to using agricultural, ruderal, and ornamental vegetation for cover, foraging, dispersal, and nesting.

## **Special Status Species**

The EAEC site is also historically and currently inhabited by several sensitive species with special status under federal and state laws. **Biological Resources Table 1** contains the Applicant's summary of special species that may potentially occur on-site and be adversely impacted by EAEC construction, operation, and maintenance (EAEC 2001a, pages 8.2-4 to .2-14).

Fourteen special-status plant species listed in **Biological Resources Table 1** potentially occur within the vicinity of the project site but many occur in habitat conditions (i.e. vernal pools, wetlands) that are not present on-site. Surveys for special-

September, 2002

status plants confirmed that none of the species were growing on the 174-acre project site or within the 43.5-acre area proposed to contain the power plant (EAEC 2001a, Table 8.2-1A). Long-term human management for intensive agriculture in the region has eliminated many of the local environmental conditions required for survival by these special-status plant species.

The CDFG identified potential for the presence of sensitive species and natural communities not mentioned in the AFC (CDFG 2001a, page 2). These include: loggerhead shrike, golden eagle, vernal pool fairy shrimp, rose mallow, Mason's lilaeopsis, and valley sink scrub plant community. These species and communities were evaluated and will be protected if nests, individuals, or habitats are found in areas impacted by EAEC facilities or linears.

**Table 1 Biological  
Resources Sensitive Species Potentially Occurring In the EAEC Project Area**  
(Source: EAEC 2001a, Table 8.2-1A; CDFG 2001a)

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>
<b>Plants</b>		
Ferris' milkvetch	<i>Astragalus tener var ferrisiae</i>	FSC/1B
Alkali milkvetch	<i>Astragalus tener var. tener</i>	FSC/1B
Heartscale	<i>Atriplex cordulata</i>	FSC/1B
Brittlescale	<i>Atriplex depressa</i>	--/1B
San Joaquin saltbrush	<i>Atriplex joaquiniana</i>	FSC/1B
Big tarplant	<i>Blepharizonia plumosa ssp. plumosa</i>	--/1B
Hispid bird's-beak	<i>Cordylanthus mollis ssp. hispidus</i>	--/1B
Palmate-bracted bird's- beak	<i>Cordylanthus palmatus</i>	FE/SE/1B
Recurved larkspur	<i>Delphinium recurvatum</i>	--/1B
Diamond-petaled Calif.poppo	<i>Eschscholzia rhombipetala</i>	--/1B
Rose mallow	<i>Hibiscus lasiocarpus</i>	--/2
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	--/1B
Showy madia	<i>Madia radiata</i>	--/1B
Rayless ragwort	<i>Senecio aphanactis</i>	--/2
Showy indian clover	<i>Trifolium amoenum</i>	FE/-
Caper- fruited tropidocarpum	<i>Tropidocarpum capparideum</i>	FSC/1A
<b>Insects and Crustacea</b>		
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT/-
Longhorn fairy shrimp	<i>Branchianecta longiantenna</i>	FE/
Vernal pool fairy shrimp	<i>Branchianecta lynchi</i>	FT/
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT/
<b>Mammals</b>		
San Joaquin pocket mouse	<i>Perognathus inornatus inornatus</i>	FSC/--
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE/ST
Riparian woodrat	<i>Neotoma fuscipes riparia</i>	FE/SSC
Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>	FE/SE
<b>Reptiles and Amphibians</b>		
California red-legged frog	<i>Rana aurora draytonii</i>	FT/--
Western pond turtle	<i>Clemmys marmorata</i>	FSC/SSC
California tiger salamander	<i>Ambystoma californiense</i>	FC/SSC
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>



## Fish

Sacramento River winter-run chinook	<i>Oncorhynchus tshawytscha</i>	FE/SE
Central Valley spring-run chinook	<i>Oncorhynchus tshawytscha</i>	FT/ST
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	FT/SSC
Delta smelt	<i>Hypomesus transpacificus</i>	FT/ST
Critical habitat for the delta smelt		
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	FT/SSC
Central Valley fall/late fall run chinook	<i>Oncorhynchus. tshawytscha</i>	FC/--

## Birds

Bald eagle	<i>Haliaeetus leucocephalus</i>	FT/SE/SFP
Golden eagle	<i>Aquila chrysaetos</i>	SFP/SSC
White-tailed kite	<i>Elanus leucurus</i>	--/SFP
Swainson's hawk	<i>Buteo swainsoni</i>	--/ST
Burrowing owl	<i>Athene cunicularia</i>	FSC/SSC
Short-eared owl	<i>Asio flammeus</i>	--/SSC
Northern harrier	<i>Circus cyaneus</i>	--/SSC
Loggerhead shrike	<i>Lanius ludovicianus</i>	-/SSC
California horned lark	<i>Eremophila alpestris actia</i>	--/SSC
Tricolored blackbird	<i>Agelaius tricolor</i>	FSC/SSC
Mountain plover	<i>Charadrius montanus</i>	FPT/SC

NOTES: FE = Federally listed as endangered. FT = Federally listed as threatened. FPE = Proposed endangered. FPT = Proposed threatened. FC = Candidate for listing as federal threatened or endangered. Proposed rules have not yet been issued because they have been precluded at present by other listing activity. FSC = Species of Special Concern threatened. SE = Species whose continued existence in California is jeopardized. ST = Species that although not presently threatened in California with extinction, is likely to become endangered in the foreseeable future. SC=State candidate for listing as threatened or endangered. SSC = California Department of Fish and Game Species of Special Concern (species with declining populations in California). SFP = Fully protected against take pursuant to the Fish and Game Code Section 3503.5. -- = No California or federal status. CNPS = California Native Plant Society Listing (does not apply to wildlife species). 1A = Plants presumed extinct in California. 1B = Plants, rare, threatened or endangered in California and elsewhere and are rare throughout their range. According to CNPS, all of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

## IMPACTS AND ANALYSIS

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### PROJECT SPECIFIC IMPACTS

Permanent and temporary impacts of the EAEC are summarized in **Biological Resources Table 2**. The Applicant submitted revised quantities for habitat acres to be impacted by the revised project on October 10, 2001. **Biological Resources Table 2** reflects the most recently submitted information (EAEC 2001v, page 3).

If built, the EAEC would result in the permanent removal of approximately 43.5 acres of prime agricultural land that also provides wildlife habitat. The construction laydown area, natural gas, water supply pipelines, and transmission lines would also result in temporary habitat losses, which may impact special status species (EAEC 2001a, pages 8.2-17, 8.2-18, 8.2-28; EAEC 2001u, pages 10-11). None of the special status species listed in **Biological Resources Table 1** were detected on the project site during biological surveys of the project area. However, there is the potential for the special status species to occur within the project site because the EAEC property, and vicinity, provide foraging and dispersal habitats in an area that has become increasingly fragmented by human development (Gan 2001a; Gan 2001b; Larson 2001). The

USFWS directed the Applicant to assume local presence of the federally endangered San Joaquin kit fox and to mitigate for habitat loss. There are other special status wildlife species, such as raptors, shorebirds, and songbirds that would benefit from the habitat mitigation established for the San Joaquin kit fox.

**Table 2 BIOLOGICAL RESOURCES**

	<b>Acreage Impacts</b>	
	<b>Permanent Impacts (acres)</b>	<b>Temporary Impacts (acres)*</b>
<b>Power plant footprint</b>	43.5	0
<b>Construction laydown areas</b>	0	29.1
<b>Transmission tower footprints</b>	0.5	0
<b>Transmission line</b>	N/A	N/A
<b>Fiber optic cable installation</b>	0	50 ft. x 1000ft. Right-of-Way
<b>Raw water pipeline (Route 3E)**</b>	0	2.2
<b>Water supply pump at Canal 45</b>	0.2	0
<b>Recycled water supply pipeline</b>		4.6 miles x 75 feet within a highly disturbed Right-of-Way
<b>Natural gas pipeline (new preferred route) including meter station</b>	0.5	8.2
<b>Total</b>	44.7	39.5 (excluding Rights-of-Way)

Source: EAEC 2001a, Table 8.2-2, page 8.2-17; EAEC 2001v, page 3; EAEC 2002d, Table 1)

\*If the Right of Way is no longer graded and disked (highly disturbed) at the time of installation of the recycled water pipeline, biological surveys and mitigation for temporary impacts may be required in consultation with the USFWS and CDFG.

### **Impacts to Special Status Plants**

The entire 174-acre project site has been heavily disturbed and cultivated over many decades, and does not support populations (or individuals) of special status plant species. However, the project site lies close to natural areas where some special status species may persist. For example, many of the sensitive plant species listed in **Biological Resources Table 1** are endemic to the vernal pool habitats or wetlands that are located south and west of the EAEC site, near the corner of Kelso and Bruns roads. Thus, impacts to these habitats and species must be avoided if project activities occur in these areas. The plant species in **Biological Resources Table 1** have not been recorded on-site, and it is unlikely that any populations potentially persisting in the area will be significantly impacted by the proposed project facilities. However, plant species such as big tarplant and showy Indian clover may grow along grassland portions of project linear features.

The proposed project linears follow existing roads and rights-of-way as much as possible. The Applicant conducted plant surveys on-site and along proposed linears, which confirmed that agricultural and ruderal plant species predominate in the area. Special status plant species were not detected by the Applicant during these surveys. Nevertheless, the Applicant will be required to conduct pre-construction surveys to ensure that habitats crossed by project linears do not contain intact native habitat or

sensitive plant species. If such species are found, the Applicant will be required to avoid impacts to the plants, or to relocate them in compliance with the California Native Plant Protection Act. Western determined that there would be no significant impacts to the federally listed plant species (Western 2002a).

### **Impacts to Special Status Animals**

There are several special status species that are assumed to be present in the area and thus could potentially inhabit the EAEC vicinity (CDFG 2001a; Gan 2001a; Larson 2001). For example, the EAEC project site and vicinity provide habitats suitable for San Joaquin kit fox, California red-legged frog, California tiger salamander, Swainson's hawk, burrowing owl, and other candidate, fully protected, or species of concern. The potential impacts to wildlife species of concern are discussed in the section below.

Mitigation for impacts to federally listed species will be contained in the Biological Opinion issued by the USFWS as part of the section 7 process of the Federal Endangered Species Act. Actions that will directly remove habitat for these species must be mitigated with off-site, local mitigation. A CDFG streambed alteration permit shall be required for alteration of streambeds and a Determination of Consistency shall be required to address impacts to state-listed species, such as the San Joaquin kit fox.

In general, in recognition of significant impacts to all sensitive species discussed below, the Applicant has stipulated that they will:

- 1) avoid sensitive habitats in designing on-site facilities and linears;
- 2) conduct pre-construction surveys; and
- 3) minimize the impacts of construction, operation, and maintenance to the sensitive and special status species in the area.

### **The USFWS Section 7 Consultation through Western**

As the lead Federal agency, Western prepared the Biological Assessment which considered the effects of the proposed action on the Federally protected species (refer to Western 2002a and listed in **Biological Resource Table 1**). Under regulations 50 CFR 402.14(b), Western determined that the proposed action will not affect any of the invertebrates, fish species, reptiles, the riparian woodrat or the riparian brush rabbit or designated Critical Habitat. Western also determined that the proposed action may affect, but is unlikely to adversely affect, the bald eagle and mountain plover. Staff concurs with the determination of no impact to riparian woodrat, riparian brush rabbit, and bald eagle. Western's determination was based on discountable or insignificant effects due to the lack of habitat and evidence of usage of the project area by these birds. Based on agreements between the USFWS and the Applicant, the proposed action may adversely affect the California red-legged frog and the San Joaquin kit fox. The California tiger salamander, a Candidate species, would probably be affected by any actions that would affect the red-legged frog.

Below staff provides analysis of impacts to other federal and state listed species and species of special concern.

## Significant Impacts

For the following species, staff has determined that the proposed project will remove or degrade habitats that are essential to the survival of special status species, particularly local populations. Habitat mitigation shall be required to decrease the impacts to less than significant levels.

San Joaquin kit fox: This species is federally endangered and state threatened. The San Joaquin kit fox is a largely nocturnal species, which prefers open grassland habitats. Kit foxes hunt small mammals, insects, reptiles, and birds and dig dens in sandy, loose-textured, loamy soils (Morrell 1972; O'Farrell 1983; Zeiner et al. 1990). Due to habitat loss within its historic range, this small fox must use agricultural fields and associated landscape features such as ditches and roadsides for denning and hunting (O'Farrell 1983; Zeiner et al. 1990). Mortality from automobiles, shootings, and poisonings is problematic in agricultural areas. San Joaquin kit fox use dens year-round, typically creating many entrances, and they rotate between many different dens within a geographic area over time (O'Farrell 1983; Zeiner et al. 1990). Thus, kit fox require an ample supply of suitable den sites and every den should be considered important (CDFG 2001a; Gan 2001a; Larson 2001; O'Farrell 1983). Natural spatial and temporal changes in den use for breeding and overwintering must be considered and all dens must be protected (Larson 2001; Zeiner et al. 1990).

Protocol level surveys were not conducted because the USFWS considered the area occupied, and protocol level surveys would not be useful to USFWS in determining mitigation (EAEC 2001r). Reconnaissance surveys conducted by the Applicant in January, May, and August 2001 did not find active or occupied dens on-site (Western 2002a, page 2-7). However, there are abundant ground squirrel burrows on site, on the berms and ditches around the borders of the site, and along the linear routes (EAEC 2001a page 8.2-1). These burrows may be enlarged and used by kit fox (EAEC 2001r).

On a larger scale, the EAEC project area represents an important, and increasingly at-risk, portion of the northern habitat range for the San Joaquin kit fox, whose historic range extended throughout San Joaquin Valley and parts of Alameda and Contra Costa counties (Gan 2001a; Larson 2001; Wheslar 1992). Land conversion in the San Joaquin Valley, from uncultivated natural habitat to urban development and agriculture, is a significant causal factor in this species' decline (Morrell 1975; O'Farrell 1983; Wheslar 1992; Zeiner et al. 1990). The project area is on the northern side of an essential migration corridor for the kit fox. The proposed project site also lies near the California Aqueduct and Delta Mendota Canal, both of which have been used by the kit fox as well as its predators and competitors (e.g. coyote and red fox). It is important to maintain the connectivity, quality, and quantity of the remaining kit fox habitat in this area of Alameda County.

The proposed project lies in Alameda County and very near the San Joaquin County boundary to the east. Alameda County constitutes a critical pinch point for the northern population of the kit fox (CDFG 2002a; Hau 2001; USFWS 2002d). The Recovery Plan for Upland Species of the San Joaquin Valley, The San Joaquin County Multi-species and Open Space Conservation Plan, and the Draft Conservation Strategy for the San

Joaquin Kit Fox in the Tracy Triangle Area, Alameda & San Joaquin Counties, California have identified the area within which the proposed EAEC would be located, as vital to the recovery of this species (USFWS 2002d).

The San Joaquin kit fox Planning and Conservation Team (KFPACT) was formed in May 2001. This group is composed of research and regulatory scientists, local, state, and federal agency representatives (including Energy Commission staff), and private organizations. Continual evaluation of research and conservation priorities has identified the area surrounding the proposed EAEC as a part of an essential habitat area and a valuable migration corridor for kit fox (KFPACT 2002a). This corridor is vital to maintain population viability and interconnectedness among the northern satellite population, as well as, connection with the more southerly kit fox population (Hau 2001; USFWS 2002d). The KF PACT has identified habitat loss and fragmentation, especially in the Livermore area and Tracy Triangle area, as priority concerns that need to be addressed to protect the species (Hau 2001; KFPACT 2002a; USFWS 2002d). Other important factors include the degradation of habitats with exotic vegetation and landscape features that favor coyote and red fox (Hau 2001).

Habitat loss in the EAEC project area is accelerating. For example, the approval of the new town of Mountain House will remove thousands of acres to the east and south of the EAEC project site. The proposed EAEC will permanently remove approximately 45 acres of this habitat directly and may result in indirect impacts to habitat quality. Indirect impacts include increased traffic and construction disturbances, as well as increased fragmentation of the remaining surrounding habitat. In 1987, there were approximately eight kit foxes inhabiting the region around Bethany Reservoir, which lies less than 2 miles southwest of the EAEC project site (EAEC 2001a page 1-2; Figure 8.2-2).

The EAEC will result in significant impacts to the San Joaquin kit fox because the project area constitutes important, occupied habitat for the dispersal, cover, foraging, and denning activities of this species (Gan 2001a; KFPACT 2002a; Larson 2001; Zeiner et al. 1990). In addition, the project linears follow road berms, rights-of-way, and levees that may be suitable for kit fox dens. These adverse impacts to the San Joaquin kit fox will be mitigated through the Biological Opinion, resulting from the section 7 consultation process between the USFWS and Western. CDFG participated in the consultation process and will provide a Consistency Determination for the San Joaquin kit fox because it is also a state listed species.

### **Potentially Significant Impacts**

Staff has determined that the following special status species could potentially be significantly impacted by the proposed project without avoidance of sensitive habitats and the implementation of mitigation measures. These species are known to inhabit the project vicinity; however, the proposed project will not significantly impact essential portions of their habitat or geographic range. No known nests or actively occupied territories were found for these species in the project area. However, the impacts to foraging or nesting habitat may be significant in a cumulative manner, due to the rapid urbanization occurring in the project region. In cases of habitat loss, staff seeks to minimize impacts to all special status species. Consequently, staff seeks to ensure that

the species in this category would benefit from habitat compensation mitigation provided for impacts to San Joaquin kit fox.

California red-legged frog: This is a federally threatened species that breeds in ponds and still waters in the coastal foothills and agricultural areas in the project area (Zeiner et al. 1988). The core California red-legged frog habitat, as designated by USFWS, lies several miles west of the project site and project linears, in the coastal foothills (Larson 2001). The species has also been reported from several locations within 1 mile of the project site and may disperse through the project site, although the likelihood of this is low due to road mortality as well as existing human-modified habitat quality. However, project linears cross and run parallel to small waterways (including Mountain House Creek, Canal 45, the Delta-Mendota Canal) and farm ponds that are potential habitat for red-legged frogs (EAEC 2001a, pages 8.2-6 and 8.2-7).

The Applicant conducted a reconnaissance and spotlight survey on January 18, 2001 (EAEC 2001 Appendix 8.2E). The survey did not detect red-legged frogs and determined that most farm ponds and the majority of Canal 45 were dry and unsuitable habitat. Mountain House Creek was dry at the point where it crosses Byron Bethany Road, and therefore this area is not suitable perennial habitat for the frog. Natural drainages near the corner of Kelso and Bruns roads, however, contained water as did several agricultural ditches and ponds. These drainages may be used by the red-legged frog during dispersal. The proposed project has a low potential to significantly affect populations and habitats of the California red-legged frog. However, because the frog is a listed species, any potential impact may be deemed significant and the USFWS Biological Opinion will cover this species as well. Avoidance of wetland habitat combined with habitat mitigation will effectively reduce adverse impacts to an insignificant level.

California tiger salamander: The tiger salamander is a federal candidate species and a state species of special concern (Federal Register 2001; vol. 66, page 54818). On July 6, 2001, the CDFG received a petition to list the tiger salamander as an endangered species (California Regulatory Notice Register 2001, vol. 33-Z, page 1393). This salamander breeds in vernal pools and ponds, and summers in animal burrows or soil crevices (Zeiner et al. 1988). At least 65% of its habitats have been eliminated and its current distribution is discontinuous and fragmented. Other habitats used by this species include grasslands and oak woodlands (Zeiner et al. 1988). This species is locally abundant in the foothills 2 miles southwest of the project and may occur in these farm pond-type wetlands or may be temporarily present in any seasonally wet area (CDFG 2001a; Larson 2001). In addition, the California Natural Diversity Database (CNDDDB) contains sightings for the salamander near the corner of Kelso and Bruns roads. Proposed EAEC linear facilities on Kelso and Bruns roads would also pass through potential tiger salamander habitat. Presently the EAEC project site contains no suitable habitat for this species except for the irrigation ditches bordering the project site (EAEC 2001, page 8.2-14). To minimize the potential impacts of the EAEC to estivation and breeding areas of tiger salamanders, the Applicant will need to obtain and comply with appropriate federal and state permits. In order to avoid significant impacts, mitigation will be required in the form of pre-construction surveys, and avoidance of habitats (CDFG 2001b).

Swainson's hawk: This diurnal hawk is a state threatened species that may seasonally forage on the project site or in the project vicinity. The diet of the Swainson's hawk varies seasonally but largely depends upon abundant insects and small rodents, especially those found in alfalfa fields and open pasture (Zeiner et al. 1990). Nests are typically located in riparian areas, and in large trees adjacent to agricultural fields. This species also forages at least 10 miles from nest sites, and roosts communally during migration (Zeiner et al. 1990). The Applicant collected data in the spring of 2001 on the proximity of nests (within ½ mile) to the EAEC. The locations of known nests will enable mitigation so that construction in the vicinity of those nests can be avoided during the active season. The Applicant reported a lack of suitable nest trees on-site, along linears and adjacent areas, and did not see any Swainson's hawks during surveys on May 4, August 14, 2000, or January 18, 2001 (EAEC 2001a, page 8.2-7). There are also no known communal roosts (used especially during migration) for this species on-site or on adjacent lands. Despite a lack of confirmed nesting habitat within the project area, staff is concerned about cumulative impacts from loss of hunting habitat in the region. The disturbance of habitats used by this species should be avoided or minimized. Overall, the EAEC will result in loss of approximately 45 acres of hunting habitat for this species. This may be significant without mitigation because rapid urbanization is occurring in the project vicinity.

Western pond turtle: This turtle is a federal and state species of concern. In the EAEC project area, the CNDDDB contains records of western pond turtles at Mountain House Creek (4 miles southeast) and in Canal 70 (1 mile southwest). This species could occur in any open farm ponds or slow-moving waters in the vicinity. Although there are irrigation ditches bordering the south and east sides of the EAEC project site, there are no open ponds or other suitable aquatic habitats on-site (EAEC 2001a, page 8.2-14). The Applicant will be required to avoid wetlands and other aquatic communities potentially inhabited by this species during construction and maintenance of the power plant and all linears.

Burrowing owl: The burrowing owl is a state species of special concern, that is likely to forage and breed in the EAEC project vicinity. This species uses ground squirrel burrows for nesting and cover, and hunts insects, small mammals, and birds in open grass and scrub habitats. Populations in California have been declining significantly due to extensive habitat conversion to agriculture and urban uses, and associated impacts such as mortality from pesticides and increased vehicular traffic (Zeiner et al. 1990). This owl species has adapted to the changing landscape by using agricultural crops and rangelands for hunting and it nests along ditches, pastures, and agricultural fields. The EAEC will contribute directly to a loss of foraging habitat for this species. There were no occupied burrows on the project site, however, ground squirrel burrows were abundant on-site along the drainages, ditches, and linears and are potential habitat. Surveys to avoid any nests and relocate owls will enable avoidance of harm to this species.

Golden eagle: This large diurnal raptor is a state fully protected species and a species of special concern. Found in diverse habitats from open grassland, desert, canyon, savannah, and rolling and rugged hillside and plateau terrain, it forages for medium

sized mammals (including fox, coyote, and domestic livestock such as lambs and calves), rabbits, rodents, reptiles, birds, and carrion (Zeiner et al. 1990). Golden eagles inhabit the vicinity of the EAEC, particularly in the Altamont Hills. Because the hunting range for this species is large (over 100km<sup>2</sup>), it may hunt and perch in the project area (Smith and Murphy 1973; Zeiner et al. 1990). This species typically nests on secluded cliff ledges and large trees where it constructs stick nests. No nesting habitat will be impacted by the EAEC. The EAEC will result in the permanent loss of potential foraging habitat for this species.

White-tailed Kite: This fully protected species inhabits oak grassland, rolling hills, and agricultural areas of California. The white-tailed kite is most active around dawn and dusk and hunts for rodents, especially the California vole (*Microtus californicus*) (Zeiner et al. 1990). For nesting, this species prefers groups of tall thickly foliated trees and riparian areas adjacent to productive hunting areas (Erichsen et al. 1996). White-tailed kites roost communally in trees or on the ground and hunt in areas close to the roost. The kite is likely to be found hunting in the EAEC area. Its nesting habitats have been increasingly lost throughout California and its population status is largely unknown (Erichsen et al. 1996). There have been records of kites nesting in the EAEC vicinity near the Western Substation (Bridges 2001). The Applicant reported that they did not find any nests or communal roosts of this species on-site or within 5 miles of the EAEC project site. Approximately 45 acres of hunting, and potential communal roosting habitat will be permanently and adversely impacted by the EAEC.

Short-eared owl: This owl is a state species of special concern. Historically, this species inhabited open grassland, meadows, wetlands, dunes, and scrub habitats throughout the entire length of California, excluding high mountains; but today the range of this ground-nesting owl has been reduced dramatically by human conversion of lands for urbanization, grazing, and agriculture (Zeiner et al. 1990). The diet of this owl species consists of small mammals, especially voles. Many of its remaining nesting and hunting habitats are agricultural lands, especially irrigated crops such as alfalfa. Plowing and harvesting, use of pesticides, depredation by feral animals, and burning of crop stubble are agricultural practices that adversely affect this species (Zeiner et al. 1990). Although this species was not reported by the Applicant during biological surveys, the site is potential habitat for the short-eared owl. The proposed project will result in the loss of approximately 45 acres of hunting habitat for this species.

Northern harrier: The northern harrier is a state species of special concern and is likely to inhabit the EAEC site and vicinity, although it was not discussed in the AFC. The harrier faces many of the same problems as the short-eared owl. Harriers nest on the ground and have suffered a reduction in range due to human alteration and destruction of preferred habitats including wetlands, meadows, and grasslands (Zeiner et al. 1990). This species attempts to nest in agricultural crops (grains) but may be adversely impacted by agriculture (burning, plowing, pesticides) and grazing (Zeiner et al. 1990). The loss of agricultural and fallow or natural habitats due to the EAEC may adversely affect this species.

Loggerhead shrike: This carnivorous songbird is a state species of special concern. The shrike prefers open habitats such as grassland, cropland, rangeland, foothill scrub and



woodland, and desert (Zeiner et al. 1990). Its populations have been declining in California due to urbanization, and it resides in the EAEC area year-round. It is a diurnal species that feeds on rodents, reptiles, amphibians, and small birds (Zeiner et al. 1990). The EAEC will permanently remove 45 acres of hunting habitat for this species, which would not be significant if acreage surrounding the EAEC is protected and managed as cropland. No nest sites should be impacted because this species nests in shrubs and trees. This species may benefit from landscape plantings of small trees and shrubs around the EAEC.

California horned-lark: This is a state species of special concern which inhabits grasslands and is a good indicator of habitat quality for ground-nesting birds (Zeiner et al. 1990). This species may forage in agricultural fields on the EAEC project site and larks may nest in fallow vegetation around the EAEC project site. Thus, the EAEC will result in a permanent loss of foraging habitat for this sensitive species.

Tricolored blackbird: The tricolored blackbird is a state species of special concern. Land conversion for agriculture and urban development, along with depredation from non-native predators and habitat degradation, are prime factors causing this species' decline (Zeiner et al. 1990). This colonial species requires fresh water and emergent vegetation, such as tule, cattails, and willow. This species is documented as being nomadic and unpredictable in terms of site fidelity. No suitable nesting habitat occurs on or adjacent to the EAEC project site, however, there are suitable habitat patches in the area along Byron Bethany Road at the Mountain House and unnamed creek. This species may also forage in agricultural crops on-site.

Mountain Plover: This diurnal plover is proposed for federal listing as a threatened species and is a state species of special concern. The mountain plover prefers open habitats lacking dense cover for foraging on insects, especially grasshoppers. As such it may be found in wetlands, grasslands, croplands, and especially plowed fields (Zeiner et al. 1990). This species nests on the ground from April through June, and is hunted by raptors, snakes, and mammals such as coyote, ground squirrels, badgers, kit fox, and skunks (Zeiner et al. 1990). The EAEC will result in loss of 45 acres of potential foraging habitat for this species.

Bats: There are several species of bats whose ranges are within the EAEC project area (Zeiner et al. 1990a). The species potentially found in Alameda county are all species of special concern and include: the Pacific western big-eared bat (*Corynorhinus townsendii townsendii*), the greater western mastiff bat (*Eumops perotis californicus*), the small-footed myotis bat (*Myotis ciliolabrum*), the long-eared myotis bat (*Myotis evotis*), the fringed myotis bat (*Myotis thysanodes*), the long-legged myotis bat (*Myotis volans*) and the Yuma myotis bat (*Myotis yumanensis*). Bat species are nocturnal and many feed on insects and use many structures for roosting, for example, caves, buildings, bridges, dead trees, and rock crevices (Zeiner et al. 1990a). According to current information on the project, bat roosts and nurseries were not found along project facilities, and will not be impacted directly. However, the proposed project will result in a loss of foraging habitat, which in turn may result in significant cumulative impacts to

regional habitats. Any special status bat species in the area would benefit from the habitat mitigation proposed nearby.

### **No Impacts or Less than Significant Impacts**

Staff has determined that the following species will not be impacted by the proposed project.

San Joaquin Pocket Mouse: This mouse species is listed as a federal species of concern. As with other local species of concern widespread land development for agriculture and urban development are primary factors in this species' population decline. Endemic to the Central and Salinas valleys, this nocturnal, non-migratory mouse inhabits open grass and scrub habitats between 1,100 and 2,000 feet in elevation (Zeiner et al. 1990a). Burrow nests are built in fine-textured soils, such that plowing and soil ripping for agriculture collapse burrows and remove the fine sands and native plants these animals need (Zeiner et al. 1990a). This species is a generalist, feeding on seeds, green plant parts, and insects (Zeiner et al. 1990a). There is relatively little information about the present distribution and status of the species. Consequently, impacts to this species are of concern to USFWS. Recent records indicate that the San Joaquin pocket mouse inhabits areas approximately 10 miles southwest of the project site, in the coastal foothills, at elevations closer to the 1,200 to 2,000 feet in elevation indicated in Zeiner et al. (1990a). The project site and surrounding areas and linears are all less than 100 feet in elevation, well below the reported range for this species (EAEC 2001a, page 8.2-14). The EAEC project site itself does not provide suitable habitat. It is unlikely that the species would be present in the developed agricultural lands surrounding the EAEC project site. Therefore, project impacts to this species are not expected to be significant.

### **Impacts to Commercially-Important Species**

Aside from fish in the Delta, discussed below, there are no known species of commercial importance that would be impacted by the EAEC.

### **Impacts to Special Status Delta Fish**

The EAEC will require approximately 4,616 acre-feet per year (AFY) of water, and up to 7,000 AFY in peak years. (EAEC 2001a, page 8.14-4). This water would be delivered by the Byron Bethany Irrigation District (BBID), which removes water from the California Aqueduct, and ultimately, the Sacramento-San Joaquin Delta (Delta) (EAEC 2001a, pages 8.2-19 and 8.14-4). BBID maintains that serving the EAEC with this water will not result in additional water diversions from the California Aqueduct. Refer also to the **Soil and Water Resources** section of this Staff Assessment.

The Delta is critical habitat for many declining or endangered fish species, such as winter run chinook, delta smelt, and Sacramento splittail (Delta Protection Act 1992; NMFS 2001a). The Delta also supports fish of importance to sport fishermen (EAEC 2001a page 8.2-19; NMFS 2001a). In the PSA staff was concerned with the levels of water to be withdrawn from the Delta due to the indirect and cumulative impacts this would have on native listed fish populations and their habitats.

The National Marine Fisheries Service (NMFS) expressed concern for the potential of indirect ecological impacts of water diversions from the Delta, which is designated as critical habitat for these fish species (NMFS 2001a; NMFS 2002b). As part of Western's section 7 consultation with the NMFS, NMFS evaluated the following species for impacts: the federally endangered Sacramento River winter-run chinook salmon (*Oncorhynchus tshawytscha*), the threatened Central Valley spring-run chinook salmon (*O. tshawytscha*), and the threatened Central Valley steelhead (*O. mykiss*). In their first response letter NMFS concluded: "If diversions are not increased over current conditions, we would not anticipate adverse effects on listed salmon or steelhead, designated critical habitat or Essential Fish Habitat (EFH). *However, if diversions into the California Aqueduct are increased as a result of the construction and operation of the proposed project*, adverse effects on listed salmon or steelhead, designated critical habitat, and/or EFH may occur, and further consultation would be required." (emphasis added) (NMFS 2001a).

The NMFS submitted comments during formal section 7 consultation with Western on March 20, 2002 and June 5, 2002 (NMFS 2002a; NMFS 2002b). In these response letters, NMFS indicated that, according to their review of the most up-to-date project information, the proposed EAEC would not result in significant adverse impacts to Delta fish. The June 5, 2002 letter also provided an explanation of the NMFS concurrence with Western's determination, based upon new information confirming the project's water supply. At the same time, the NMFS stated that if the project description changes, reconsideration of their determination may be necessary. Based on the available data, staff concurs with the NMFS determination of no significant impacts to special status Delta fish species.

### **Impacts Related to Landscaping and Visual Screening**

The Applicant has proposed landscaping around the facility to partially screen the project structure (refer to the **Visual Resources** section of this Staff Assessment). The landscape around the proposed EAEC was historically open grassland. The natural openness of the area has been modified by many types of exotic trees that have been planted around building structures. Such modification has altered the habitat characteristics of the local landscape, resulting in adverse impacts to species reliant upon open grasslands. One such species is the San Joaquin kit fox.

The USFWS and CDFG indicated that the Applicant's original landscape plan would result in unacceptable adverse biological impacts to listed, sensitive, and protected wildlife species (CDFG 2001a; Gan 2001a; Larson 2001). The area around the EAEC still provides important habitat, which connect increasingly fragmented habitat patches and provides potential dispersal, hunting, and nesting habitats for many special status species. It is a goal of CDFG and the USFWS to improve the management of habitats in the EAEC area in order to increase, stabilize, and restore special status wildlife (see also, KFPACT 2002a).

In particular, the USFWS and CDFG expressed concerns that planting large trees and shrubs would provide nesting and perching sites for large raptors. Large raptors would prey upon San Joaquin kit fox, and other special status species, whose populations are threatened by habitat loss, habitat degradation, habitat fragmentation, and/or

competition with non-native species (Hau 2001; KFPACT 2002a; Larson 2001). In addition, the planting of shrubs and trees within grasslands creates habitat conditions that favor the red fox and coyote while degrading its quality for use by kit fox. The plantings would likely provide refuge and hunting cover for terrestrial predators (i.e. coyote, and the non-native red fox) whose local abundance is particularly detrimental to San Joaquin kit fox populations in this critical habitat area (Gan 2001b; Larson 2001; USFWS 2002d). Ultimately, the adverse impacts of the landscape plantings would cause the remaining lands around the EAEC to act as a habitat “sink” and not a source of support for the species. A habitat sink is an area, which may attract wildlife and provide habitat, but also contains threats and adverse conditions, such as habitats preferred by predators (Meffe and Carroll 1997). The result for a given species (e.g. kit fox) is that the mortality rate becomes greater than reproductive success and survival, and the habitat becomes a sink, thus causing a species’ decline (Meffe and Carroll 1997; Pulliam, H.R. 1988).

Western has also expressed concern that the planting of numerous trees around the facility would attract birds such as doves, blackbirds, pigeons, and starlings (Bridges 2001a). The Western Tracy Substation has documented problems with birds colliding with their electrical equipment and causing outages (Bridges 2002a; Sornborger 2002a). Consequently, Western has expressed concern that the planting of additional trees would attract more birds and increase the frequency of bird collisions and electrocutions with the EAEC switchyard (which will be owned by Western).

There are also relevant policies in Alameda County. Policies 113 and Program 51 require that landscaping enhance the scenic quality of the area while remaining compatible with habitat values, water use, and fire retardance. Policy 51 lists non-native invasive plants that should be avoided for landscaping. Policies 118, 119, and 120 place priorities on preserving open space and enhancing and managing these areas for sensitive wildlife and protecting biological diversity. The proposed landscaping may also violate the intent of these policies by planting non-native species and planting them in a manner, that harms special status species (per comments of USFWS and CDFG).

The Applicant attempted to develop a landscaping plan that would visually screen the facility from key observation points without causing significant biological impacts (EAEC 2001y, page 2). Three workshops were held to discuss this issue (September 12, 2001, November 7, 2001, and January 22, 2002). In response to comments on the second design, a third plan was submitted by the Applicant on April 3, 2002. Although USFWS, CDFG and staff prefer that no trees and shrubs are planted around the project site, it was agreed that the landscaping plan submitted on April 3, 2002 would sufficiently minimize biological impacts. The trees are planted very close to the site fence and the design incorporates many native plant species as well as management practices designed to minimize biological impacts to San Joaquin kit fox (see mitigation section).

### **Construction Impacts**

The proposed generating facility site would require a 43.5-acre power plant footprint, including the area to be used for landscaping (EAEC 2001 section 8.2 pages 17-18; EAEC 2002a). Construction of the generating facility and linears will result in permanent loss of approximately 45 acres of habitat as well as temporary disturbances to

approximately 40 acres of habitat. The proposed construction laydown area will be compacted and overlain with a layer of gravel or other material. Upon completion of laydown, the site will be returned to agricultural use (EAEC 2001a, page 8.2-28) or restored as natural vegetation using plants approved by Energy Commission in consultation with the USFWS, Western, and CDFG. Lastly, temporary disturbances will result from the installation of the transmission line, including a construction access road and laydown area comprising 0.5 acre of agricultural land. Thus, construction activities have the potential to disrupt foraging, nesting, and survival of sensitive animal species. Construction may also disturb sensitive plant species. General impacts from construction which must be minimized or eliminated, include:

Dust and air pollution (see **Air Quality** section of this Staff Assessment);

Erosion and water degradation (see **Soil and Water Resources** section of this Staff Assessment);

Excess noise (see **Noise** section of this Staff Assessment);

Traffic; and

Damage or mortality of sensitive biological resources, using measures such as speed limits, exclusionary fences, and pre-construction biological surveys.

The above impacts would be significant but may be mitigated to less than significant levels with appropriate habitat compensation and the implementation of avoidance and minimization measures. Adverse impacts of construction activities will be monitored and avoided, minimized and mitigated per conditions set forth in the Conditions of Certification.

### **Operation Impacts**

Operation of the proposed project will result in HRSG emissions, cooling tower emissions, and noise and lights from plant operations, all of which may cause impacts to biological resources on the site and adjacent areas (EAEC 2001a, section 8.2.3.4). Power plant facilities may also cause impacts from avian collisions with the HRSG stacks and transmission lines.

### **Impacts from Air Emissions**

Heat Recovery Steam Generator (HRSG) Emissions: Air emissions from the two HRSG stacks will contain air pollutants such as nitrogen oxide gases (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), and PM<sub>10</sub> (discussed in the **Air Quality** section of this Staff Assessment). Nitrogen oxide gases may be converted to nitrate particulates which, when deposited on the ground, could adversely affect vegetation communities adapted to low nutrients (Weiss 1999). There are no such plant communities in the vicinity of the EAEC. Nitrogen dioxide is phytotoxic at exposures considerably higher than those resulting from most industrial emissions. Acute exposures (1-hour) of 18,000 µg/m<sup>3</sup> are reported in the scientific literature to result in leaf damage. Chronic exposures of lower levels ranging from 280 to 490 µg/m<sup>3</sup> may result in decreased dry weight and leaf area (EAEC 2001a, page 8.2-27). The predicted maximum EAEC emissions of NO<sub>x</sub> are 0.80 µg/m<sup>3</sup>, levels far below the cited threshold limits. In addition, the total predicted maximum 1-hour NO<sub>x</sub> concentrations of 72.6 µg/m<sup>3</sup> (with infrequent concentrations of 204.7 µg/m<sup>3</sup> during

emergency and test operations) will be significantly lower than the 1-hour threshold ( $7,500 \mu\text{g}/\text{m}^3$  or 3,989 parts per million) known to cause 5 percent foliar injury to sensitive vegetation (EAEC 2001a, page 8.2-27). Finally, there are no identified sensitive soils, such as serpentine soils, which are known to support particularly sensitive ecological communities. Thus, the HRSG emissions are not predicted to cause significant impacts to biological resources with the proposed emission controls.

Cooling Tower Drift: Maximum cooling tower drift from the cooling tower would be 0.0005 percent of the circulating water flow. Cooling water would be emitted as mist with a peak hourly rate of 85 gallons per hour during 98 F air temperatures (EAEC 2001a, page 8.2-25). The small amount of temporary moisture produced daily from the cooling towers is not expected to change the microclimate of the area (EAEC 2001a, page 8.2-25).

Cooling towers produce a fine mist of water that escapes the cooling tower and is emitted into the atmosphere. This mist contains particulates (total dissolved solids) which concentrate in the water to produce a salt mist. Biologically, cooling towers may result in adverse impacts if chemicals such as ammonia, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc become concentrated at high levels. Once deposited, the dissolved solids impact vegetation by physically damaging the cells of leaves, especially on young plants, and affecting the photosynthetic ability of the plant. The Applicant cites work by Pawha and Shipley (1979), who exposed vegetation (corn, tobacco, and soybeans) to saltwater ranging from 20 to 25 parts per thousand in order to simulate drift from cooling towers; the results indicate that salt stress symptoms on the most sensitive crop plants were barely perceptible at a deposition rate of 2.98 grams per square meter per year ( $\text{g}/\text{m}^2/\text{year}$ ) (Pawha and Shipley, 1979). EAEC emission levels are predicted to be much less than these levels, and therefore, no significant impacts will result.

The maximum annual predicted deposition for PM<sub>10</sub> from the project (including cooling towers) is  $0.6 \mu\text{g}/\text{m}^3$  (EAEC 2001, page 8.2-26). The Applicant assumed a maximum deposition velocity of 2 centimeters per second (cm/sec), and predicted an annual deposition rate of  $0.4 \text{g}/\text{m}^2/\text{year}$  (EAEC 2001, page 8.2-26). The estimated deposition rate for PM<sub>10</sub> from the EAEC, including cooling tower drift, is thus approximately one order of magnitude below the deposition rate that was shown to cause barely perceptible vegetation stress from salt mist ( $2.98 \text{g}/\text{m}^2/\text{year}$ ) in the most sensitive plants. Quarterly wind data indicate that prevailing winds are out of the northwest and would cause cooling tower drift to be directed mainly away from potentially sensitive plant areas to the south, southwest and west (EAEC 2001a, Figures 8.1-1 to 8.1-4). Thus, based on current data, cooling tower drift is not expected to have any significant impact on vegetation in surrounding areas within the maximum impact radius for the cooling tower drift.

Amphibians are particularly sensitive to atmospheric chemical pollutants; however, the cooling tower drift is not expected to have an impact on either the California red-legged frog (*Rana aurora draytonii*) or California tiger salamander (*Ambystoma californiense*). The nearest documented populations of these species are to the south, southwest, and west of the EAEC site and will not be impacted by the EAEC emissions. Cooling tower

drift impacts on sensitive vegetation or wildlife species near the project site are not expected to be significant. The Applicant will be required to use Best Available Control Technology (BACT) to minimize all sources of air emissions and minimize biological impacts to an insignificant level.

Cooling Tower Effluent: The cooling process also produces cooling tower effluent (blowdown) after the water has cycled through the cooling towers. This process concentrates particulates such as calcium salts, thereby increasing the salinity of the discharge water. This water would not be discharged, but treated on-site in a multimedia filtration system which includes a brine crystallizer/dryer system (EAEC 2001v, Supplement B page 3). Thus, no biological impacts are expected.

### **Impacts from Avian Collisions with Facility Structures**

Avian collisions with Heat Recovery Steam Generator (HRSG) stacks occur when the birds are unable to see the stacks during fog and rain events or during migration when birds frequently fly at night (CEC1995; Kerlinger 2000). Factors known to increase the risk of avian collisions include: the stack location, size, visibility, weather conditions (fog, rain), and species-specific flocking and flight behaviors. Site-specific placement of the towers as well as local seasonal bird occurrence and behavior also contribute to risk factors for avian collision and mortality with stack structures and wires (CEC 1995; Kerlinger 2000; Manville 1999). Most of the research on avian collisions with towers has focused on structures greater than 500 feet tall. The EAEC stacks are proposed to be only 175 ft tall and there are little data quantifying avian collision and mortality due to structures less than 200 feet tall. The EAEC is surrounded by agricultural fields, which may provide attractive foraging habitat for birds such as egrets, herons, and birds of prey. However, these species should have ample visibility and clearance to avoid hitting the stacks. Staff concludes that the HRSG stacks are not expected to cause significant numbers of bird collisions. If a collision problem is detected on the facility by the Designated Biologist, corrective action and/or monitoring should be implemented.

### **Impacts from Noise and Lighting**

Operation of the EAEC will produce some noise as described in the AFC (2001a) section 8.5, pages 8.5-10 to 8.5-13) and in subsequent submittal (EAEC 2001w received October 10, 2001). For a detailed analysis of noise impacts, refer to the Noise section of this Staff Assessment. The quiet environment surrounding the EAEC typically has L90 levels between 30 to 40 dBA during the night, and L90 levels between 35 to 45 dBA during the day, mostly due to distant traffic (EAEC 2001a, page 8.5-6; EAEC 2001w, pages 40-42). The increases from the plant (as much as 13 dBA) would be significant and would need to be mitigated (EAEC 2001a, page 8.5-8). The predicted operational noise levels are below 60 dBA, which is the threshold level hypothesized to cause potentially significant disturbance to wildlife. Highly sensitive reptiles, birds, or mammals are not expected to breed on-site or in adjacent agricultural fields. Available data on the expected noise levels do not indicate significant risk that long-term operations will adversely impact wildlife because levels will be below 60 dBA. In addition, mitigation for noise levels will be implemented (EAEC 2001 page 8.2-27; EAEC 2001p pages 40-42 and 43-44; EAEC 2001w, page 5). Noise levels from plant

operation will not cause significant adverse impacts to wildlife after proposed mitigation is implemented.

Construction activities will temporarily increase noise levels more than plant operation levels. Construction equipment, such as concrete mixers, backhoes, jackhammers, and drills can produce noise levels that can range from 78 to 98 dBA. Such activities frighten wildlife away, disrupt their nesting, roosting, or foraging activities, or prevent them from using the habitats available around the EAEC. Many species of wildlife are able to adapt to construction noise once they associate it with non-threatening activities. Noise impacts from construction will need to be mitigated with appropriate technology and avoidance of sensitive resources. Noise levels from construction will not cause significant adverse impacts to wildlife upon implementation of appropriate mitigation measures.

Lighting will also be required on-site. Bright night lighting will disturb the resting, mating, or foraging activities of wildlife. Lights may also make roosting or nesting birds more visible to predators. Night lighting is also suspected to attract migratory birds to areas, and if the lights are on tall buildings or HRSG stacks, collisions could occur (EAEC 2001a, page 8.2-27). To reduce these effects, lighting would be pointed downward to minimize impacts (EAEC 2001a, page 8.2-27). The color of the lighting may also be an important factor to be considered and modified. The efficacy of this mitigation will need to be monitored using methods defined in the BRMIMP. Corrective actions will be required as needed.

### **Maintenance Impacts**

Maintenance activities on the EAEC site include keeping vegetation clear of the fence line for fire control. An area approximately 10 feet wide around the fence line will be kept mowed. The use of all rodenticides, herbicides, and insecticides shall be consistent with USDA label requirements.

## **IMPACTS FROM LINEAR FACILITIES**

### **Natural Gas Supply Pipeline**

**A new preferred gas pipeline route** was presented by the Applicant on February 6, 2002 (EAEC 2002a, page 2, Figure 1). This new pipeline route would be 1.8 miles long. As sited, the pipeline originates from the EAEC site and follows the route 2A pathway for 0.9 miles. However, unlike alternative 2A, it would turn southwest at the Delta Mendota Aqueduct and run along the eastern side of the Aqueduct for approximately 0.9 miles to its terminus at the PG&E main pipeline.

The new 0.9 mile section running along the Aqueduct would transect sensitive habitats such as those open habitats used by San Joaquin kit fox and burrowing owl. In addition, there are three wetlands, that may be impacted. These three areas are packed-earth or concrete-lined canals operated by BBID (Canals 70, 120 and 155). They are seasonally dry and lack aquatic or riparian vegetation. Constructing in these areas when flow is not present in the canal and preventing adverse impacts to water quality will be sufficient to avoid significant adverse impacts to sensitive species. The southern segment of the



pipeline may impact designated critical habitat for the California red-legged frog as well as the habitat of the western pond turtle (EAEC 2002a, page 8). The California tiger salamander has been found less than 0.5 miles from the pipeline route and may also disperse through this area or estivate in burrows along the pipeline route. The areas that may be impacted are water channels that are maintained by the BBID and are seasonally dry and devoid of riparian vegetation. Pre-construction surveys and implementation of construction during the dry season would eliminate significant impacts to these areas. The Biological Resources Mitigation Monitoring and Implementation Plan will address the monitoring of listed species prior to and during construction of the gas pipeline. Habitat mitigation will provide habitats to benefit the kit fox and burrowing owl, as well as wetlands, that provide habitat for salamanders, frogs, and turtles.

**Alternative 2A** (the Applicant's original preferred alternative) would require 1.4 linear miles. It exits the project site to the south, following Kelso Road west to the Bethany Compressor Station just east of Bruns Road where it will interconnect into PG&E Line 401. Staff supports both this alternative and the new preferred alternative because both routes will be constructed to avoid and mitigate the adverse biological impacts to sensitive habitats, plants, and wildlife.

**Alternative 2B** was eliminated as an alternative in the AFC because of potential adverse impacts to sensitive biological resources.

**Alternatives 2C, 2D, and 2E** would impact sensitive habitats near and within the California red-legged frog Recovery Plan "core" habitat area and are thus eliminated from consideration by staff.

Construction Impacts: Construction of the preferred natural gas supply pipeline would require horizontal directional drilling (HDD), trenching, or jack and bore construction methods (at the railroad crossing). Impacts due to construction of the pipeline will be temporary disturbance of ruderal vegetation along the north side of the road (EAEC 2001a, page 8.2-20). Because there are sensitive habitats in that area, several practices can be implemented to avoid impacts. Wetlands to the north and south of Kelso Road will be avoided completely. With proper avoidance and minimization mitigation, impacts from installation of the gas pipeline (preferred route A) will be insignificant.

Operation Impacts: Operation of the gas pipeline will not impact the biological resources unless a leak occurs. A leak could result in fire, thereby potentially impacting biological resources.

Maintenance Impacts: Maintenance of the gas pipeline will involve weed control above the pipeline route along Bruns Road and Kelso Road (EAEC 2001a, page 8.2-20). Maintenance techniques must be ecologically sound, performed by a trained employee who is aware of sensitive biological resources in the area, and in accordance with any permits required by state and federal agencies. No significant impacts resulting from

pipeline maintenance are expected unless the pipeline maintenance requires ground disturbance. At such a time, the USFWS and CDFG should be consulted.

The BRMIMP will contain all mitigation measures to be implemented along the gas and water pipelines.

### **Raw Water Supply Pipeline**

All proposed raw water supply pipeline alternatives would be less than four miles long and would avoid the most sensitive biological resources in the area (EAEC 2001a, Figures 8.2-1 and 8.2-2). The extent of potential biological impacts depends upon which of the four feasible alternative routes is implemented (See the **Soil and Water Resources** section of this Staff Assessment).

**Alternative 3A** would require 2.6 miles of pipeline from the pump station in Canal 45, north along Bruns Road and then southeast along Byron Bethany Road to the EAEC (EAEC 2001a, Figure 1.1-2). This alternative would be along existing paved roads and ruderal roadside vegetation and would completely avoid sensitive habitats. In addition crossings of waterways would be made using horizontal directional drilling or placement of pipes on top of existing culverts.

**Alternative 3B** would be 3.6 miles in length. It would use the existing Canal 45 and Canal 70 and associated pump stations to transport water from the California Aqueduct to the intersection with Mountain House Road. A pump station and a 3,000-foot (0.6 mile)-long pipeline would need to be installed at the intersection of Canal 70 and Mountain House Road, so that water could be transported across Mountain House Road and north to the EAEC (EAEC 2001a, page 7-9). Wetland habitats exist in areas adjacent to this alternative route and these areas would be subject to ACOE and/or CDFG permits if any construction disturbance affected these areas. This alternative could result in potentially significant adverse impacts.

**Alternative 3C** had already been eliminated by the Applicant in the AFC (EAEC 2001a, page 7-8) due to concerns for its potential to adversely impact local biological resources.

**Alternative 3D** would be 2.4 miles long and is similar to Alternative 3A and Alternative 3E. The pipeline would run south along Bruns Road east of the Delta-Mendota Canal, and then north to Byron Bethany Road. The pipeline would then be installed south along Byron Bethany Road and cross Mountain House Road to reach the project site. This alternative would require: open-cutting across Mountain House Road, crossing a high-pressure oil pipeline, crossing Canal 45 along the gravel road, and overlaying large box culverts that route the Delta-Mendota Canal. This alternative is more complicated to build and permit, and may traverse sensitive habitats. As such, it is not a preferred route of staff.

**Alternative 3E** (the Applicant's preferred alternative) is similar to the route associated with Alternative 3D, except that it would only be 2.1 miles long because it would travel east along a gravel road and cross under the Delta-Mendota Canal directly west of the project site. From this location, the pipeline would proceed directly to the EAEC. The crossing of the Delta-Mendota Canal would be done using horizontal directional drilling

methods (HDD) (EAEC 2001a, page 8.2-18). This alternative would not cross the high-pressure oil pipeline along Byron Bethany Road and the large box culverts that route the Delta-Mendota Canal water under Byron Bethany Road.

Staff also prefers route 3E and concurs with the Applicant's avoidance of sensitive habitats, installation of the pipeline down the middle of the existing road, and the use of HDD for installing the pipeline along the edge agricultural fields and under the Delta-Mendota Canal (EAEC 2001a, page 8.2-18). If construction requires disturbance of drainages or streams, a CDFG Streambed Alteration Agreement may be needed.

Construction Impacts: The impacts to biological resources from the raw water supply pipeline are projected to be insignificant because wetland and sensitive species will be surveyed prior to construction and avoided. Construction of the water supply lines would require HDD and trenching in some locations, as well as temporary construction staging areas. There have been no specific records of sightings or burrows along the linear alignments, but pre-design surveys will be implemented to be certain that waterline construction does not disturb an existing burrow or den. The berm along the Delta-Mendota Canal is potential San Joaquin kit fox denning habitat, but pre-design surveys also did not identify any potential dens in this area. Specific environmental awareness, training, and monitoring measures will be implemented as determined in consultation with USFWS and CDFG to avoid adverse impacts to kit fox.

Construction impacts would be temporary and because the Applicant plans to install the pipes in the road and use horizontal directional drilling across waterways, the temporary and permanent impacts are negligible. EAEC LLC has refined the construction of the water supply route by extending the horizontal directional drill so that the pipe will "daylight" on the EAEC LLC 174 acre parcel, which is on the east side of Mountain

House Road (EAEC 2002a, page 3). This will eliminate the trenching of Mountain House road for this project feature. The Byron Bethany Irrigation District's (BBID) normal maintenance schedule for the canals includes cleaning the canals of aquatic weeds, other vegetation, and periodic canal bank reshaping during the months of November - March. To facilitate a more continuous operation of BBID's facilities, concrete canal lining, and a water control structure will be used on those existing canals that are incorporated into the water supply features for the EAEC. All construction will be required to comply with conditions specified in applicable permits from CDFG and/or ACOE.

Operation Impacts: Operation of the water supply line would not cause impacts to biological resources unless a leak should occur. Leakage of the water supply pipeline could result in localized ponded water, which could impact both vegetation and animals.

Maintenance Impacts: It is anticipated that the water supply line will be buried and not require surface disturbance for maintenance. Therefore, no significant impacts resulting from pipeline maintenance are expected unless the pipeline maintenance requires ground disturbance. At such a time, the USFWS and CDFG should be consulted.

## **Recycled Water Supply Pipeline**

The Applicant has proposed to design the EAEC with the capacity to use recycled water from the Mountain House Community Service District Wastewater Treatment Plant (MHCSO WWTP). Please refer to the **Soil and Water Resources** section of this Staff Assessment for analysis of the recycled water supply. In the AFC, the Applicant originally provided two alternative routes (**4A** and **4B**), both of which are approximately 4.6 miles long. The routes differed in their origin from the project site and in their location along the north or the south side of Byron Bethany Road (EAEC 2001a; Figure 2.1-1).

The Applicant's original preferred route **4B** exits the northwest corner of the project site, heading north to Byron Bethany Road and then turned south. At this point the route had the potential to be sited on the north or south side of Byron Bethany Road. This route would have resulted in significantly greater impacts to sensitive biological resources than route **4A**, which started at the southwestern edge of the project site and traveled west along Kelso Road to the south side of the Byron Bethany Road. Both pipeline routes crossed creek beds and the Union Pacific Railroad and terminated at the future MHCSO WWTP pump station (EAEC 2001a, Figure 8.2-1, page 2-11 to 2-12, and section 7.1.2).

The Applicant has since refined the preferred route **4B** such that the pipeline would: 1) exit the project site at the northeast corner, rather than the northwest corner, and 2) be installed along the south side of Byron Bethany Road. This change was made in order to avoid biological resources on the north side of the road (EAEC 2002a, page 3 and Figure 2).

Staff concurs with the Applicant's preferred recycled water pipeline route. Special status species, such as the San Joaquin kit fox, California red-legged frog, western pond turtle, Swainson's hawk, and burrowing owl are unlikely to be impacted by construction of the pipeline along the refined route **4B**. A kit fox den was identified less than 2,000 feet from the area of the proposed water source and, as such, there is still the potential for impacts at that location. Swainson's hawks also hunt and nest in the area (EAEC 2001a; Figure 8.2-2). The California red-legged frog and pond turtle were not detected during surveys (EAEC 2001a; Figure 8.2-2). Any temporary impacts to special status species and habitats (wetlands, ruderal, and agricultural) may be mitigated to less than significant levels with avoidance and minimization measures as well as compliance with conditions contained in any required CDFG and ACOE permits.

Construction Impacts: The refinements to the recycled water pipeline and the raw water pipeline will avoid sensitive habitats and reduce the amount of construction required for the line. Therefore, the new recycled water pipeline route presented in EAEC (2002a) will result in fewer biological impacts due to the highly disturbed nature of the installation route. The Applicant proposes to install the recycled water pipeline on the south side of Byron Bethany Rd. The south side of the road is presently graded and disked due to a separate and ongoing construction project (EAEC 2002a).

Operation Impacts: Operation of the water supply line would not cause impacts to biological resources unless a leak should occur. Leakage of the water supply pipeline could result in localized ponded water, which could impact both vegetation and animals.

Maintenance Impacts: It is anticipated that the water supply line will be buried and not require surface disturbance for maintenance. Therefore, no significant impacts resulting from pipeline maintenance are expected.

### **Fiber Optic Cable**

Western requested the installation of an 8-inch fiber optic cable conduit from the EAEC switchyard west across Mountain House Rd. along an existing dirt road and into the north side of the Tracy Substation, a linear distance less than 1,000 ft. and a width of 50 ft. (EAEC 2002a, page 2, Figure 2). The fiber optic cable will provide a second communication path between the EAEC switchyard and the Tracy Substation. The installation of this cable via trenching will temporarily disturb ruderal vegetation. With appropriate construction avoidance and mitigation measures, adverse impacts will be insignificant. Operation of the cable will not result in biological impacts.

### **Transmission Lines**

The EAEC will interconnect to the Modesto Irrigation District and Turlock Irrigation District (MID/TID) 230-kV transmission line running along Kelso Road approximately 0.5 miles south of the project site. The MID/TID line will be routed into and out of the EAEC switchyard in a north/south orientation on separate transmission poles and will be approximately 260 feet apart. The EAEC's transmission lines will be only 0.5 miles long, and it will exist within an area of high migration and daily movement of birds, especially waterfowl and raptors.

Electrocution may result in serious impacts to bird populations and typically occurs when a bird simultaneously contacts two conductors of different phases or contacts a conductor and a ground (CEC 1995; CEC 1999). If there is not sufficient clearance between these elements, electrocutions may occur. In general, transmission lines larger than 65 kV have sufficient clearance between these elements to protect large birds from electrocution. Installation of transmission lines and related facilities according to the guidelines suggested in the Avian Power Line Interaction Committee report (APLIC 1996), Harness (2000) and CEC (1999) will provide a means to eliminate most potential impacts associated with electrocution.

Collisions of birds with EAEC transmission lines may be a measurable problem because the EAEC project area attracts many bird species. However, the impacts may not be limited to EAEC facilities, but rather, may be occurring on adjacent transmission lines. However, there has been a documented problem with bird electrocution and “nuisance” perching at the Tracy Substation, which lies directly across the street (Sornborger 2002a). Ultimately, the EAEC has the potential to create an increase in avian collisions with the new transmission lines. Staff recommends implementation of a short-term (one year) monitoring program to quantify avian collisions, and electrocutions.

Construction Impacts: Construction impacts of the transmission line will include the permanent removal of approximately 0.5 acres of agricultural vegetation on the south

side of the Kelso Road near the Western Substation. The same area under the towers would be temporarily disturbed by equipment (flatbed and crane) during construction.

Maintenance Impacts: Maintenance impacts may include increased traffic and the storage of equipment during repairs. Impacts should be minimal when best management practices are implemented.

## **CUMULATIVE IMPACTS**

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Cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” (California Environmental Quality Act Guidelines, Section 15355). A cumulative impact is one which results from the combination of impacts associated with the proposed project, in addition to those resulting from separate projects in the region; these additional projects may be underway or may be planned in the future and must cause similar adverse impacts. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time.

The proposed EAEC will permanently remove approximately 45 acres of wildlife habitat. There are two additional energy projects under review or approved by the California Energy Commission that are proposed close to the EAEC. Midway Power, LLC submitted the Tesla AFC on 10/12/01. Tesla is proposed as a 1,120 MW combined cycle facility located on a 160-acre parcel in Alameda county, less than 10 miles from EAEC. The second project (submitted 8/16/01 and approved July 17, 2002) is for the Tracy Peaker Project, a simple cycle 169 MW facility within a 40-acre parcel near the City of Tracy. In addition, the new town of Mountain House has been approved less than 1 mile southeast of the proposed EAEC. Mountain House is projected to achieve maximum build-out by the year 2024 and have a population of at least 40,000 people (EAEC 2001p, page 55). These proposed projects will result in potentially significant cumulative adverse impacts to terrestrial habitats for special status species, such as the San Joaquin kit fox. These projects may also use freshwater in a manner that causes potentially significant cumulative adverse impacts to endangered populations of native fish species.

The EAEC will contribute to the cumulative loss and degradation of habitats essential to the persistence and recovery of special status wildlife species. Staff seeks to ensure that potential cumulative impacts from the EAEC are mitigated. Through agency-approved terrestrial mitigation, such as that proposed by the Applicant, the EAEC will mitigate impacts to less than significant levels and avoid contributing to potentially significant cumulative terrestrial impacts.

## MITIGATION

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### APPLICANT'S PROPOSED MITIGATION

The Applicant has proposed a variety of mitigation measures to offset habitat loss and adverse impacts caused by construction, operation, maintenance, and closure of the proposed facility (EAEC 2001a, section 8.2.3; EAEC 2001u, pages 1-21; EAEC 2002d).

The Applicant has proposed to mitigate for adverse impacts to biological resources with the following actions (EAEC 2001, pages 8.2-24 to 8.2-25; EAEC 2001u, pages 11-12). The Applicant is in the process of obtaining a section 7 permit from USFWS with Western acting as the lead agency. The section 7 permit will specify actions that are required to avoid, minimize, or compensate for any potential adverse impact to listed and sensitive species and their habitat, especially that of the federally endangered San Joaquin kit fox, the California red-legged frog, and California tiger salamander (as a federal candidate species). The Applicant also committed to avoid wetlands and implement wetland and waterway protection measures (EAEC 2001u, pages 12-15).

#### **Habitat Mitigation**

The Applicant has proposed to mitigate for significant adverse impacts to listed species by providing the money to purchase suitable mitigation habitat. Specifically, the Applicant has proposed habitat mitigation/compensation for the San Joaquin kit fox (EAEC 2002d). The California red-legged frog, California tiger salamander, and other special status species will also benefit from the protection and management of this habitat (EAEC 2001p, pages 1-2; EAEC 2002d).

The Applicant proposes to place a conservation easement on the Gomes Farms property, a 151-acre parcel that lies approximately one mile west of the EAEC project site (EAEC 2002d, Figures1). The Applicant obtained this property with CDFG, USFWS, and Energy Commission staff guidance. The habitat value of this parcel is high because the parcel:

- provides suitable short grassland habitat for San Joaquin kit fox and other special status species;
- creates and maintains habitat connectivity with adjacent wildlife preserves, mitigation parcels, and open space;
- contains rare habitat features and a diversity of habitat types(e.g. alkali marsh and wetlands, connectivity to uplands and riparian drainages); and
- provides adequate size to mitigate for impacts of the project.

The Applicant proposes to establish a conservation easement on the 151-acre parcel, to prepare a management plan, and to establish an endowment to manage the parcel in perpetuity. The size of the endowment will be based upon a Property Analysis Report (PAR), that will be conducted through the Center for Natural Lands Management (CNLM). The mitigation land will be managed by a qualified third party natural land

management organization approved by Energy Commission staff, USFWS, CDFG, and Western.

### **Avoidance and Minimization Measures to Protect Special Status Species**

Specific measures proposed by the Applicant to mitigate for impacts to special status species are as follows:

#### **Federal and State Endangered or Threatened Species**

##### **San Joaquin Kit Fox:**

Obtain and comply with the conditions of a section 7 authorization for incidental take of this species;

1. Conduct pre-design surveys for all areas potentially affected by the project;
2. Set and enforce speed limits in the construction area at 20 miles per hour or less;
3. Provide any excavations or ditches with escape ramps and check for trapped wildlife before work commences each day;
4. Cap pipes over 4 inches in diameter or check before they are moved; and
5. Implement procedures and recommendations published in the USFWS guidelines for San Joaquin kit fox (USFWS 1997).

##### **California Red-legged Frog:**

1. Conduct pre-construction surveys in the spring (before February 1) of the project site and project linears to determine if suitable habitat is occupied;
2. Avoid all suitable breeding habitats; and
3. If suitable breeding habitat cannot be avoided, implement measures to temporarily relocate frogs or other measures as required by USFWS.

#### **Species of Special Concern**

##### **Tiger Salamander (also a Candidate for Federal Listing):**

1. Conduct pre-construction field surveys shall be implemented to identify potentially suitable habitat; and
2. Implement Avoidance and minimization measures to protect habitats from impacts.

##### **Swainson's Hawk:**

1. Implement nest surveys within ½ mile of project features to determine use by Swainson's hawk;
2. If project features are within ½ mile of Swainson's hawk nesting, avoid construction within ½ mile during nesting season if feasible; and



3. An incidental take agreement (CDFG Section 2080.1) will be obtained if construction cannot avoid active nests by ½ mile.

Burrowing Owl:

1. Conduct pre-construction surveys in the spring (before February 1) to determine if habitat is occupied by burrowing owls;
2. Implement mitigation measures that protect burrowing owls by passive relocation and/or restriction of any construction activities within 150 feet during non-breeding season or 250 feet of active burrowing owl nest burrow during breeding season (February 1 through August 31); and
3. Incorporate areas in landscape/mitigation corridor for forage and potential burrow habitat.

California Horned Lark:

1. Perform surveys at the appropriate time of year to identify locations of potential nests within 100 feet of project features; and
2. Avoid construction in the vicinity of horned lark nests (EAEC 2001a, page 8.2-13).

Tricolored Blackbird:

1. Conduct pre-construction surveys for this species within 100 feet of project features; and
2. Avoid wetlands as well as construction in the vicinity of blackbird nests.

Foraging Raptors (including the loggerhead shrike), Herons, Egrets, and Waterbirds:

1. Design “raptor-friendly” electric transmission lines as described in the “Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996” (APLIC, 1996);
2. Provide safety lighting that points downward on the HRSG stacks to reduce avian collisions; and
3. Lease the 134-acres of land surrounding the EAEC for use in wildlife-friendly agriculture (per USFWS and CDFG guidelines).

The Applicant also agreed to conduct additional surveys for tarplant (EAEC 2001p, data response 46).

**Mitigation for Landscaping and Visual Screening**

In an attempt to reduce the biological impacts due to the landscaping for visual screening, the Applicant submitted a revised landscape plan on April 3, 2002 (EAEC 2002c). The landscaping also lies within the 43.5 acre footprint. Therefore, additional habitat compensation was not proposed. The revised plan incorporates several measures designed to decrease biological impacts including: locating the vegetation closer to the project fence, increasing the use of native species, decreasing the use of

large trees, and proposing to maintain shrubs and trees with a 3 foot clearance from the ground.

### **Mitigation Practices for Construction**

The Applicant has proposed to implement several mitigation measures as follows (EAEC 2001a, page 8.2-25; EAEC 2001u, pages 10-11):

- Provide mitigation construction monitoring by a qualified Designated Biologist during construction activities near sensitive habitats;

- Provide all EAEC employees with environmental awareness training from the Designated Biologist (required in staff's proposed Condition of Certification **BIO-4**) in order to ensure that employees are:

  - aware of sensitive natural resources on site and in the project area; and

  - compliant with EAEC best management practices and procedures for protecting biological resources at all times;

- Submit the Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP) which needs to be approved by staff in consultation with the USFWS, NMFS, CDFG and Western (required in staff's proposed Condition of Certification **BIO-5**);

- Conform with the BRMIMP and general mitigation measures at all times (required in staff's proposed Condition of Certification **BIO-12**);

- Avoid sensitive habitats and species during construction by developing construction exclusion zones and silt fencing around sensitive areas;

- Conduct additional pre-construction surveys for sensitive species in impact areas during the spring before construction begins, especially near the Delta-Mendota Canal;

- Prepare construction monitoring and compliance reports, which indicate the effectiveness of the mitigation measures;

- Use of existing roads for the delivery of construction materials and equipment to the site and laydown area; and

- Removal of the temporary construction laydown area and restoration to its existing condition as soon as feasible after construction was complete (EAEC 2001a, page 8.2-28).

The Applicant did not provide specific mitigation for decommissioning of the power plant facility but rather stated its intention to provide mitigation appropriate to potential effects at a time closer to the plant closure process. Overall, the Applicant suggests that the area may return to agricultural or open space use (EAEC 2001a, page 8.2-27).

The noise from construction activities will be restricted from 7a.m.-7p.m weekdays and 9a.m.-7p.m. weekends (EAEC 2001a page 8.5-8 Table 8.5-4). To mitigate for noise levels the Applicant proposes to use silencers during steam blows to reduce noise levels from approximately 95 dBA to levels below 55 dBA (EAEC 2001p, pages 43-44).

## **Mitigation For Natural Gas and Water Pipelines**

EAEC states that measures previously identified for project construction would apply to all project linears. Specifically, the Applicant provides the following list (EAEC 2001a, section 8.2.3.5):

All project linears would be surveyed prior to construction to identify significant biological resources that require avoidance or protection;

Avoidance, protection and worker awareness training would be detailed in the project Biological Resources Management and Implementation Plan (BRMIMP);

Construction would be constrained within a designated construction corridor, generally 75 feet wide or less;

Any wetlands crossed by project linears would be avoided, or crossed in compliance with conditions specified by a Section 404 Permit or Streambed Alteration Agreement, as appropriate;

Sensitive and special status plants occurring in pipeline rights-of-way would be removed prior to construction;

The impacts of habitat disturbance will be minimized by placing the pipeline under an existing dirt road in fields that are dominated by vineyards and agricultural production;

Ground-dwelling animals could become trapped in uncovered trenches if the trenches were kept open at night or if suitable egress was not provided. Therefore, escape ramps will be employed; and

The construction site would be restored to pre-existing contours and re-vegetated after construction.

For project linears, the temporary construction and laydown area would remain along the 25- to 75-foot construction right-of-way during the course of construction. The laydown area would serve as the location for storing pipe and other pipeline construction materials. The EAEC plans to locate additional storage area in existing paved or graveled areas. Pipeline construction would take approximately 8 months.

In addition, the Applicant proposes the following (EAEC 2001a, page 8.2-28):

HDD would be used to bore the pipelines under drainages, canals, and sensitive habitats;

Vegetation would be removed when trenching methods are used to install pipelines. Most of the habitat disturbed would be annual grassland and weeds occurring along roadsides, but some agricultural fields could also be trenched; and

After construction, the trench would be back-filled with the excavated soil and restored to pre-construction conditions, both with respect to contour and to vegetation.

Impacts to wildlife and special status species from linear corridor construction would be mitigated through the measures specified above, including pre-construction surveys,

avoidance, and restoration. After mitigation, the habitat should provide the same support of wildlife as prior to linear installation.

### **Mitigation for Impacts from Transmission Lines**

The Applicant proposes to design and construct transmission lines within code to minimize the electrocution of large raptors (APLIC 1996 ; CEC 1999; EAEC 2001a). Upon implementation of the proposed mitigation, impacts of the new transmission lines will be less than significant.

### **Mitigation for Cumulative Impacts**

The Applicant has not proposed to mitigate for cumulative impacts because they determined that, with agency-approved habitat mitigation, the impacts would be insignificant (EAEC 2001a, page 8.2-29).

## **STAFF'S PROPOSED MITIGATION**

In general, staff supports the aforementioned mitigation proposed by the Applicant because the measures will prevent significant impacts from construction, operation, and maintenance, and will compensate (and minimize) for permanent and temporary impacts of habitat loss through habitat compensation. Staff proposes the following standard conditions, many of which were originally put forth by the Applicant:

Hiring of a Designated Biologist and Biological Monitors (see Conditions of Certification **BIO-1**, **BIO-2** and **BIO-3**);

Implementation of Worker Environmental Awareness Program (see Condition of Certification **BIO-4**);

Compliance with USFWS and CDFG permit requirements (see Conditions of Certification **BIO-7**, **BIO-8**, and **BIO-9**);

Preparation of a BRMIMP (see Condition of Certification **BIO-5**);

Implementation of construction and operation mitigation measures (see Conditions of Certification **BIO-11** and **BIO-12**); and

Preparation of facility closure plans (for emergency and permanent closures) (see Condition of Certification **BIO-6**).

Staff supports the proposed habitat mitigation strategy for addressing permanent and temporary habitat losses, as well as, a minimization of adverse impacts caused by landscaping in this critical habitat region for the San Joaquin kit fox (see Conditions of Certification **BIO-13** and **BIO-14**).

Under Western's review process, the proposed project must comply with the Department of Energy-Floodplain and Wetland Regulations. Specifically, Title 10, Code of Federal Regulations, section 1022 establishes policy and procedures for the Department of Energy's (DOE's) responsibilities with respect to compliance with Executive Orders 11988 and 11990, including: (1) DOE policy regarding the consideration of floodplain/wetlands factors in DOE planning and decision-making; and (2) DOE procedures for identifying proposed actions located in floodplain/wetlands,

providing opportunity for early public review of such proposed actions, preparing floodplain and wetland assessments, and issuing statements of findings for actions in a floodplain. Western may thus require the Applicant to prepare a Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022 (see Condition of Certification **BIO-15**). Western will determine the need for this assessment. If required, this assessment including mitigation measures shall be prepared prior to initiation of construction of the pipelines and shall be included within the BRMIMP.

### **Habitat Mitigation (Condition of Certification BIO-13)**

In accordance with USFWS and CDFG requirements, the significant permanent and temporary losses of habitats used by special status species must be mitigated (Gan 2001a; Larson 2001). Overall, staff supports the Applicant's proposed acquisition of the

Gomes property and provision of an endowment through a qualified and approved third party management entity (as provided in EAEC 2002d). The proposed mitigation was developed in consultation with USFWS, CDFG, and Energy Commission staff over many months. In staff's opinion, a local parcel with high biological value was obtained to provide habitat for kit fox, burrowing owl, amphibians, raptors, and other special status species. This parcel is also contiguous with other preserve lands or protected areas and habitat types.

The entire 151-acres shall apply for the habitat impacts of the project. If the Applicant incurs additional impacts in the future, they will need to purchase additional acres of habitat at an agency-approved location, using a 3:1 ratio for permanent impacts and a 1:1 ratio for temporary impacts.

In addition, if the Applicant implements additional landscaping, other than the plan approved by the USFWS, Western, CDFG, and Commission staff, they shall be required to provide additional habitat mitigation for the acres impacted by the landscaping; A 3:1 ratio will apply for permanent impacts and a 1:1 ratio will apply for temporary impacts.

The Applicant has also proposed to retain approximately 134 acres of agricultural lands surrounding the EAEC (on-site) for use in agriculture and for the benefit of wildlife, including kit fox and various bird species (EAEC 2001v, Supplement B, page 3). Please refer to the **Land Use** Section of this Staff Assessment. However, the agricultural lands north and south of the power plant facility were not proposed as part of the biological resources habitat mitigation package. Because the Gomes Farms parcel fully mitigates for the project's biological impacts, staff has not written a biological Condition of Certification regarding this agricultural easement. Although staff supports the Applicant's proposal to maintain the areas north and south of the facility in agriculture, staff is concerned that the agricultural crops and practices implemented in this area may not always benefit wildlife. For example, staff does not support the installation of vineyards or orchards in this area due to their low value as habitat for San Joaquin kit fox and other grassland species.

### **Mitigation for Landscaping and Visual Screening (Condition of Certification BIO-14)**

Biology staff prefers that there would be no landscaping around the facility due to biological impacts to the San Joaquin kit fox. However, the Applicant's April 3, 2002 conceptual landscaping plan is acceptable (refer to Condition of Certification **VIS-3**). This plan has been reviewed and approved by the USFWS, CDFG, and Western in consultation with Energy Commission staff. The April 3, 2002 plan minimizes the use of large trees and includes an acceptable selection of native plant species (EAEC 2002c). The Applicant's proposed management of the landscaping, including the maintenance of a 3 foot clearance from the bottom of the vegetation to the ground, is also acceptable. The Applicant should also consult with Western regarding the distance of landscaping from electrical equipment (Bridges 2002a). The final landscaping design should be approved by Energy Commission staff in consultation with the USFWS, CDFG, and Western. Any changes to the April 3, 2002 landscaping plan and management practices should be approved by the USFWS, CDFG, and Western in consultation with Energy Commission staff.

In addition, staff recommends that the Applicant install artificial refuge dens for the San Joaquin kit fox around the perimeter of the project (refer to Condition of Certification **BIO-14**). These dens will provide the kit fox with a place to escape from predators. The use of these dens by kit fox and other mammals should be monitored and the red fox population (also proposed by the Applicant) should be controlled. The details of this installation and monitoring will be developed in consultation with the USFWS, CDFG, and Western and included in the BRMIMP.

### **Avoidance and Minimization Measures to Protect Special Status Species (Condition of Certification BIO-12)**

Staff recommends the implementation of pre-construction surveys for the following species:

- Listed and sensitive plant species (i.e. big tarplant), which may grow along grassland portions of project linear features;

- Listed and sensitive animal species such as those listed in the Applicant's proposed mitigation, and all raptor nests (including northern harrier and short-eared owl), and

- If sensitive species of plants or animal are detected, construction activities will avoid nests or habitat areas for the species according to USFWS and CDFG protocols. Noise levels and lighting will also be eliminated or minimized to avoid adverse impacts to sensitive species during construction.

Staff also recommends the implementation of a one-year monitoring program to determine impacts from avian collisions with transmission lines and electrical equipment. The monitoring program will be developed in consultation with Western and CDFG and provided as part of the BRMIMP.

### **Mitigation Measures for Operation and Maintenance**

Routine operation, maintenance activities, and activities related to emergencies, may result in disturbances to vegetation and wildlife. The use of existing roads, appropriate

driving speeds, and clear marking of sensitive areas will be required. The BRMIMP will provide detailed implementation procedures for minimizing construction, operation, and maintenance impacts to wildlife to less than significant levels. All employees will need to receive environmental awareness training so that they are knowledgeable about sensitive natural resources potentially occurring at EAEC project facilities, can ensure compliance with federal and state laws, and will ensure use of best management practices and procedures for protecting biological resources at all times (see Conditions of Certification **BIO-4**, **BIO-11**, **BIO-12** and **BIO-6** for facility closure).

### **Mitigation for Impacts from the Gas Supply Pipeline**

Staff supports the selection of the preferred gas supply pipeline route because it will avoid significant impacts to biological resources. Mitigation measures proposed by the Applicant are designed to avoid and minimize impacts during construction, operation, and maintenance and are acceptable. The Applicant shall comply with conditions set forth through USFWS, CDFG, and ACOE permits required for the project. Western may require the Applicant to prepare a Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022 (see Condition of Certification **BIO-15**).

### **Mitigation for Impacts from the Water Supply Pipeline**

Staff supports selection of alternative 3E, the Applicant's preferred water supply pipeline route. Mitigation will include the Applicant's proposed mitigation measures and full compliance with USFWS, CDFG, and ACOE permit conditions. Western may require the Applicant to prepare a Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022 (see Condition of Certification **BIO-15**).

### **Mitigation for Impacts from the Recycled Water Pipeline**

Staff concludes that the Applicant's preferred recycled water pipeline route is acceptable, upon implementation of pre-construction surveys, compliance with federal and state permits, habitat mitigation, and avoidance and minimization measures. The Applicant shall comply with conditions set forth through USFWS, CDFG, and ACOE permits required for the project. Western may require the Applicant to prepare a Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022 (see Condition of Certification **BIO-15**).

### **Mitigation for Indirect Impacts**

The indirect impacts of air pollution and noise will not need to be mitigated because there are no expected significant impacts to biological resources.

The indirect impacts of lighting, traffic and other potential adverse impacts from construction will be mitigated through specific mitigation practices listed in a Condition of Certification and enforced with a Worker Environmental Awareness Program (see Conditions of Certification **BIO-4** and **BIO-12**).

The Applicant will also be required, as stipulated in the AFC, to implement designs for the transmission towers that prevent the electrocution of perching raptors per Energy Commission (1999) and APLIC (1996) guidelines (see Conditions of Certification **BIO-5** and **BIO-11**).

## **Mitigation for Cumulative Impacts**

Upon implementation of habitat compensation and mitigation measures approved by the USFWS, Western, CDFG, and Energy Commission staff, the proposed project will not cause significant cumulative impacts. The proposed use of recycled water will eventually provide a beneficial decrease in the use of raw freshwater. This will minimize the potential cumulative impacts of regional projects that withdraw raw freshwater from the Delta.

## **COMPLIANCE WITH LORS**

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To be in compliance with applicable laws, ordinances, regulations and standards, the EAEC must obtain the following:

- 1) A section 7 consultation and resulting Biological Opinion from the USFWS;
- 2) CDFG 2081 Take Permit for state listed species;
- 3) A second letter of consultation with the NMFS, received June 12, 2002;
- 4) A CDFG Streambed Alteration Agreement, if applicable;
- 5) A U. S. Army Corps of Engineers Section 404 permit, if applicable; and
- 6) A Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022, if applicable.

These documents will identify mitigation measures required by each regulatory agency. For further information on these documents refer to Conditions of Certification **BIO-7**, **BIO-8**, **BIO-9**, **BIO-10**, and **BIO-15**).

To help the project owner comply with laws, ordinances, regulations, and standards and the biological resource mitigation measures associated with this project, the Applicant must designate a biological resource specialist and biological monitors prior to the beginning of any project-related site mobilization. The qualified Designated Biologist and biological monitors must be familiar with the biological resource issues of the project area, as well as the Conditions of Certification and BRMIMP. The Designated Biologist and biological monitors will help the project owner make certain that all mitigation measures are complied with during project construction and operation. For details about the roles and responsibilities of the Designated Biologist, see Conditions of Certification **BIO-2**, **BIO-3**, and **BIO-4**.

## **FACILITY CLOSURE**

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Sometime in the future, the EAEC facility may experience either a planned closure, or be unexpectedly (either temporarily or permanently) closed. When facility closure occurs, it must be done in such a way as to protect the environment and public health and safety. To address facility closure, an "on-site contingency plan" will be developed by the project owner and approved by the Energy Commission Compliance Project



Manager (CPM)(See **General Conditions** section in **Facility Closure** and Biological Resources Condition of Certification **BIO-6**).

The region surrounding the proposed project site is a mosaic of agricultural habitats and vernal pool, wetland habitats, which provide habitat for sensitive species (i.e. the San

Joaquin kit fox, California tiger salamander, California red-legged frog, Swainson's hawk, white-tailed kite, and burrowing owl). Because the proposed project area currently provides habitat for these species, the facility closure plan needs to address habitat restoration measures to be implemented in the event of a planned or an unexpected permanent closure. Habitat restoration measures that should be addressed include such tasks as the removal of all power plant site structures and the immediate implementation of habitat restoration measures to re-establish native habitat types. In addition, planned or unexpected permanent facility closure may also trigger the removal of the transmission conductors, and possibly the entire transmission line, since birds are known to collide with transmission conductors.

In the event of an unexpected temporary closure, EAEC must ensure environmental safety and compliance with all BRMIMP conditions as well as those established in the **Soil and Water Resources** section in this Staff Assessment. In the event that the Energy Commission CPM decides that the facility is permanently closed, the above-mentioned facility closure measures need to be given careful consideration.

## CONCLUSIONS AND RECOMMENDATIONS

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The proposed EAEC project will result in significant and potentially significant adverse effects to biological resources. These potentially significant adverse biological impacts include the permanent loss of approximately 45 acres of wildlife habitat, for San Joaquin kit fox (and other special status species), as well as temporary habitat impacts that may result during the construction of the facility and linears. In addition, the installation of landscaping around the facility would have created a significant adverse impact to the San Joaquin kit fox. The Applicant's landscaping plan has been modified to minimize the area impacted by the landscaping and includes plant species and management practices that will reduce impacts to the kit fox. Careful selection of linear routes for gas and water pipelines has enabled the Applicant to avoid and minimize adverse biological impacts.

The significant adverse biological impacts of the EAEC project will be mitigated to less than significant levels upon:

- the successful implementation of habitat compensation through conservation and management of the entire Gomes Farms parcel;

- compliance with all required federal and state permits listed in the Conditions of Certification;

- administration of the Worker Environmental Awareness Program;

implementation of all recommended and stipulated avoidance and minimization measures; and

implementation of the BRMIMP.

The proposed project will be in compliance with LORS once all required federal and state permits have been obtained, and upon successful compliance with all permit conditions. If the project is approved, staff recommends that the following Conditions of Certification apply to the proposed project.

## **CONDITIONS OF CERTIFICATION**

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### **Selection of the Designated Biologist**

**BIO-1** The project owner shall submit the resume, including contact information, of the proposed Designated Biologist to the CPM for approval.

**Verification:** The project owner shall submit the specified information at least 60 days prior to the start of any site (or related facilities) mobilization. Site and related facility activities shall not commence until an approved Designated Biologist is available to be on site.

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
3. At least one year of field experience with biological resources found in or near the project area; and
4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If a Designated Biologist needs to be replaced, then the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist.

### **Duties of the Designated Biologist and Biological Monitors**

**BIO-2** The Designated Biologist shall perform the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. These duties also pertain to the Biological Monitors.

1. Advise the project owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;

2. Be available to supervise trained and approved Biological Monitors, supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat;
3. The Designated Biologist and Biological Monitors shall be thoroughly familiar with the Biological Conditions of Certification and the BRMIMP;
4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way;
6. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification; and
7. Respond directly to inquiries of the CPM regarding biological resource issues.

**Verification:** The Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports. Qualified Biological monitors shall be approved by the CPM and training shall be verified according to procedures established in the BRMIMP including familiarity with the Conditions of Certification. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

### **Authority of the Designated Biologist and Biological Monitors**

**BIO-3** The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist and Biological Monitors to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist or Biological Monitors, the project owner's Construction and Operation Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist and Biological Monitors shall:

1. Require a halt to all activities in any area when determined that there would be adverse impact to biological resources if the activities continued;
2. Inform the project owner and the Construction/Operation Manager when to resume activities; and

3. Notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the halt.

**Verification:** The Designated Biologist and/or Biological Monitors must notify the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

### **Worker Environmental Awareness Program**

**BIO-4** The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the project.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and permanent habitat protection measures;
5. Provide an understanding of the duties and authority of the Designated Biologist and Biological Monitors;
6. Identify whom to contact if there are further comments and questions about the material discussed in the program;
7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines; and
8. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

**Verification:** At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM two (2) copies of the WEAP and all supporting written materials prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed training acknowledgement forms shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for active project operational personnel shall be kept on file for six months, following the termination of an individual's employment.

### **Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)**

**BIO-5** The project owner shall submit to the CPM for review and approval a copy of the BRMIMP and shall implement the measures identified in the approved BRMIMP. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS and appropriate agencies to insure no conflicts exists.

The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. All Biological Resource Conditions of Certification identified in the Commission's Final Decision;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion ;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Take Permit and Streambed Alteration Agreement and ACOE permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure;

7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
10. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
11. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities - one set collected prior to any site or related facilities mobilization disturbance and one set collected subsequent to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;
12. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;
14. All performance standards and remedial measures to be implemented if performance standards are not met;
15. A discussion of biological resources related facility closure measures;
16. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
17. A copy of all biological resources obtained permits.

**Verification:** At least 60 days prior to start of any site or related facility mobilization activities, the project owner shall provide the CPM with two copies of the BRMIMP for this project, and provide copies to the CDFG and the USFWS.

The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt.

The project owner shall notify the CPM no less than 5 working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the

BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring items are still outstanding.

### **Closure Plan Measures**

**BIO-6** The project owner shall incorporate into the planned permanent or unexpected permanent closure plan and the BRMIMP, measures that address the local biological resources.

The planned permanent or unexpected permanent closure plan shall address the following biological resources related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;
2. Removal of all power plant site facilities and related facilities;
3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
4. Revegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

**Verification:** At least 12 months prior to commencement of closure activities, the project owner shall address all biological resources related issues associated with facility closure which is incorporated into the BRMIMP in a Biological Resources Element. The Biological Resources Element shall be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

### **Incidental Take Permit**

**BIO-7** The project owner shall acquire an Incidental Take Permit from the California Department of Fish and Game (CDFG) (per Section 2081(b) of the Fish and Game Code; California Endangered Species Act) and/or a Consistency Determination (per Section 2080) and incorporate the terms and conditions into the project's BRMIMP.

**Verification:** At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the final CDFG Incidental Take Permit and/or a Consistency Determination.

### **Streambed Alteration Agreement**

**BIO-8** The project owner shall acquire a Streambed Alteration Agreement from the CDFG, and incorporate the terms and conditions into the project's BRMIMP. If a Streambed Alteration Agreement is not needed for the project, the Project Owner shall submit a letter from CDFG stating their intention to not require the permit.

**Verification:** At least 30 days prior to the start of any site or related facilities mobilization activities the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement, or a letter from CDFG stating their intention to not require the permit.

Federal Biological Opinion

**BIO-9** The project owner shall provide final copies of the Biological Opinion and any amendment addressing project changes from the U. S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the project's BRMIMP.

**Verification:** At least 30 days prior to the start of any site or related facilities mobilization activities the project owner shall submit to the CPM a copy of the U. S. Fish and Wildlife Service's Biological Opinion and any amendment.

### **U.S. Army Corps of Engineers Section 404 Permit**

**BIO-10** Upon final design of the project linear facilities, such as the recycled water line, the need for a U.S. Army Corps of Engineers (ACOE) Section 404 permit shall be determined. The project owner shall provide a final copy of the U.S. Army Corps of Engineers Section 404 permit or a letter from the ACOE stating that the Section 404 permit is not required. If the ACOE 404 permit is required, the biological resources related terms and conditions contained in the ACOE 404 permit shall be incorporated into the project's BRMIMP.

**Verification:** At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the U.S. Army Corps permit, or a letter from the ACOE stating that the Section 404 permit is not required.

### **Preventative Design Mitigation Features**

**BIO-11** The project owner shall modify the project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources.

Measures that shall be implemented as appropriate include:

1. Design transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;
2. Screen the water intake pipes that use natural waterways in a manner to avoid entrainment;
3. Avoid loss of wetland and riparian habitats; and
4. Design and construct transmission lines and all electrical components to reduce the likelihood of electrocutions of large birds.

**Verification:** All mitigation measures and their implementation methods shall be included in the BRMIMP.



## **Construction Mitigation Management to Avoid Harassment or Harm**

**BIO-12** The project owner shall manage their construction site, and related facilities, in a manner to avoid or minimize impacts to the local biological resources.

The project owner shall comply with the following measures:

### **Biological Mitigation Measures Proposed by Staff:**

1. Appropriate avoidance and minimization measures shall be in place before site mobilization of a particular area, or activity that may impact sensitive biological resources;
2. Conduct pre-construction surveys for special status plant and animals according to USFWS, and CDFG protocols and recommendations, and in consultation with the CEC and Western. The Applicant has explicitly listed some surveys, that are listed below and detailed in the text of the FSA. The timing and duration of the surveys shall be reviewed, agreed upon and provided in the BRMIMP;
3. Clearly mark construction area boundaries with stakes, flagging, silt fencing, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization;
4. All equipment storage shall be restricted to designated construction zones or areas that are currently not habitat for special status species;
5. Traffic is restricted to existing roads, designated access roads, construction storage and staging areas, and parking areas;
6. Daytime construction at all drainages and drains to avoid impacts to special status reptiles, amphibians, and mammals;
7. There shall be temporary fencing and wildlife escape ramps for construction areas that contain steep walled holes, or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar materials that are approved by USFWS and CDFG;
8. Open trenches shall be inspected for wildlife each morning prior to start of daily construction activities. Inspect all construction pipes, culverts, or similar structures with a diameter of 4-inches or greater for sensitive species (such as kit foxes) prior to pipe burial. Any wildlife observed shall be allowed to escape on its own if possible prior to commencement of construction. Otherwise, the Designated Biologist shall contact the appropriate agency for assistance;
9. To prevent entrapment of listed species, or other animals during construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall either be covered at the close of each working day by plywood or provided with one or more escape ramps (3:1) constructed of earth fill or wooden planks. For all open trenches, an escape ramp shall be constructed at a minimum of every 0.25-mile;

10. Setbacks and buffers shall be established for the protection of special-status wildlife species. Distances shall be determined through consultation with the USFWS and CDFG prior to construction;
11. Pipes to be left in trenches overnight shall be capped;
12. Use of rodenticides shall be according to USDA label standards on-site, at the construction laydown area, and along linears. Use of rodenticides that are enclosed or otherwise protect kit fox, birds of prey, and other non-target species from becoming inadvertently poisoned;
13. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals shall be reported to CDFG, and the Project Owner shall follow instructions that are provided by CDFG;
14. Revegetate and maintain all linears, construction, staging, temporary parking, and equipment storage areas with CPM-approved plant species;
15. Implement pre-construction surveys raptor nests and all sensitive and special status species of animals and plants that are potentially on the project site, along linears, and at the construction laydown area within 14 days prior to commencement of any construction activities; and
16. Implement a monitoring program for avian electrocution and collisions for 12 months to determine if mitigation, such as the installation of bird-flight diverters, is necessary. The monitoring plan shall be included in the BRMIMP and developed in consultation with the USFWS, Western, and CDFG.

### **Specific Mitigation Measures Proposed by the Applicant**

17. Implement pre-construction surveys for big tarplant;
18. Implement nest surveys for Swainson's hawk within ½ mile of project features to determine use by Swainson's hawk. If project features are within ½ mile of Swainson's hawk nesting, avoid construction within ½ mile during nesting season if feasible. If construction cannot avoid active nests by ½ mile, an incidental take agreement (CDFG Section 2080.1) shall be obtained;
19. Implement pre-construction surveys for burrowing owl on the EAEC site, along linears, and the construction laydown area, followed by avoidance or passive relocation (per 1993 California Burrowing Owl Consortium Guidelines), if owls are observed;
20. Perform surveys at the appropriate time of year to identify locations of potential California Horned Lark nests within 100 feet of project features. Construction shall be avoided in the vicinity of nests;
21. Implement pre-construction surveys for tricolored blackbird within 100 feet of project features and avoid construction in the vicinity of nests;

22. Conduct pre-construction surveys for California red-legged frog and California tiger salamander and implement mitigation measures to avoid impacts to habitats for these species;
23. For San Joaquin kit fox: Obtain and comply with the conditions of a section 7 authorization for incidental take of this species. Conduct pre-design surveys for all areas potentially affected by the project. Set and enforce speed limits in the construction area at 20 miles per hour or less;
24. Implement the pre-construction surveys for San Joaquin kit fox, and construction practices and mitigation measures as outlined in *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 1999);
25. Provide safety lighting that points downward on the HRSG stacks to reduce avian collisions;
26. Lease the 134-acres of land surrounding the EAEC for use in wildlife-friendly agriculture (per USFWS and CDFG guidelines); and
27. Implement a red fox control program.

**Verification:** All mitigation measures and their implementation methods shall be included in the BRMIMP. The Project Owner shall provide a post-construction compliance report, within 30 calendar days of completion of the project, to the Energy Commission CPM.

### **Compensation for Loss of Habitat**

**BIO-13** Prior to the start of site mobilization for the project and any related facilities, the project owner shall provide a conservation easement on the 151-acre Gomes Farms parcel. The Gomes Farms habitat provides suitable habitat for the San Joaquin kit fox, burrowing owl, Swainson's hawk, California tiger salamander, and California red-legged frog. If the project owner causes impacts to additional acres of habitat during construction or operation of the project they shall be required to mitigate for those impacts with additional habitat compensation, at a ratio of 3:1 for permanent impacts and 1:1 for temporary impacts, at the Haera mitigation bank or other location to be approved by the CPM in consultation with the USFWS, CDFG, and Western.

The conservation easement on the Gomes Farms parcel shall be approved through CDFG or an entity approved by CDFG and will remain in effect in perpetuity. CDFG or an entity approved by CDFG will hold the conservation easement and the endowment. The project owner shall provide a Property Assessment Report (PAR) analysis for establishment of an endowment to provide for the long-term management of the habitat lands. The third party management agency shall receive the endowment funds through CDFG or an entity approved by CDFG. Selection of the third party management agency and management procedures for the conservation easement lands must be approved by the CPM in consultation with the USFWS, CDFG, and Western.

**Verification:** At least 30 days prior to the start of site mobilization on the project site or any related facilities, the project owner shall provide the CPM with a copy of the complete conservation easement agreement pursuant to this Condition of Certification. Upon completion of the acquisition and transfer, if applicable, of the habitat lands (include county parcel #) to the approved recipient(s), the project owner shall provide the CPM with copies of all title transfer records or records verifying other approved transactions. The Project Owner must provide to the CPM for approval, the name of the management entity, and written verification that the appropriate endowment fund (determined by the PAR analysis) has been received by the approved management entity.

Each month, the project owner shall provide information on additional planned or unplanned impacts to habitats that will be permanently or temporarily by the project. The project owner shall provide information at least 30 days prior to incurring the impacts for planned impacts and within 30 days of incurring the impacts for unplanned impacts. Each month, the Designated Biologist shall prepare, as part of the monthly compliance report, a detailed description and evaluation of any additional habitat impacts. The report shall include appropriately scaled and detailed maps, the number of acres to be impacted or already impacted, the types of habitat(s) impacted and any impacts to special status species. Within 30 days of the completion of construction, the project owner shall submit a final report on all additional acres impacted, if any. In this report, the project owner shall provide evidence of consultation with the CPM, USFWS, and CDFG to confirm the location and acreage of habitat compensation to be provided at the approved mitigation ratio. If no additional habitat acres are impacted, then no additional habitat mitigation shall be required.

### **Refuge Burrows for San Joaquin Kit Fox**

**BIO-14** The Project Owner's Landscape Plan submitted on April 3, 2002 shall be approved after licensing and implemented as approved (refer to Condition of Certification **VIS-3**). The final landscaping design shall be approved by Energy Commission staff in consultation with the USFWS, CDFG, and Western. In order to protect San Joaquin kit fox from predators and competitors that may benefit from the landscaping, and to generally minimize adverse impacts to the kit fox, the Project Owner shall install artificial refuge dens underneath the landscaping and around the perimeter of the facility. The spacing and size of the dens shall be determined in consultation with CDFG and USFWS and shall be included in the BRMIMP. A monitoring plan concerning the use of the dens shall also be developed and implemented in consultation with CDFG, USFWS, and Western and shall be included in the BRMIMP.

**Verification:** The approved Landscaping Plan and San Joaquin kit fox den installation and monitoring plan shall be attached to the BRMIMP and shall be submitted to the CPM for approval at least 60 days prior to the start of any site or related facility mobilization activities.

## **Wetland Assessment per Title 10, Code of Federal Regulations, Section 1022**

**BIO-15** Upon final design of the project linear facilities, the need for a Wetland Assessment, per the requirements in Title 10, Code of Federal Regulations, section 1022 , shall be determined by Western. The project owner shall provide a final copy of the Wetland Assessment that shall be reviewed and approved by Western. The biological resources related terms and conditions contained in the Wetland Assessment shall be incorporated into the project's BRMIMP. If the Wetland Assessment is not required, the project owner shall provide the CPM with a letter from Western stating that the assessment is not required.

**Verification:** At least 45 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the Wetland Assessment, or a letter from Western stating that the Wetland Assessment is not necessary.

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